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ABSTRACT

This report presents the results derived from data in a four-year study (1966-1970) of elementary mathematics (ELMA) in grades K-3. Chapter 1 is a brief summary of the study; a detailed description is given in "ELMA Reports, No. 1" (SE 016 832). The relationship between mathematics performance at the end of each year of the study and previous achievement was one aspect of the investigation. A year-by-year analysis and interpretation of the data pertaining to this relationship are reported. The other area covered was the relative effect of two curricula and two socio-economic levels (low and middle) on mathematics performance. These comparisons are also present for each grade level. The two curricula, SRA text series and the SMSG-prepared materials, are outlined briefly to indicate similarities and differences. A detailed comparison is given in "ELMA Reports, No. 1." Statistical data are included in the appendix. (JP)

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ELMA REPORTS

No. 2

A Longitudinal Study of Mathematical Achievement in the Primary School Years: Curriculum and Socio-Economic Comparisons and Predictions from Previous Achievement

Irene Rosenthal-Hill

SE016 833

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INTRODUCTION

The results to be presented in this report are derived from data gathered in a four-year study (1966-1970) of elementary mathematics (ELMA) which covered the grades kindergarten through third grade. A detailed description of the study can be found in ELMA Report No. 1[1], but a brief summary of the study will be presented here. A description of all tests administered during the study, together with item and scale statistics can be found in the ELMA Technical Reports Nos. 1 through 4[2]. Tests were administered in schools in two cities, but only results for City 1 are included in this report and in ELMA Technical Reports Nos. 1-4.

Selection of Sample

The schools included in the study were selected so that students would be predominantly either from a low socio-economic background or from a middle socio-economic background. An administrator in the school system who had worked with the schools for a number of years selected four clusters of schools. Each of the clusters sent its children to the same junior high school. Two of the clusters were of low socio-economic background and two were of middle socio-economic background.

All entering kindergarten children in each school were included in the sample unless they had serious problems such as lack of knowledge of English, definite psychological problems, or serious sensory impairment.

Since there was a large attrition between kindergarten and first grade, students were added to the sample at the end of first grade. All students that were present in first grade classes in the participating schools, but had not been in the schools at the beginning of kindergarten when the study started, were added to the sample.

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(1) ELMA Report No. 1, A Longitudinal Study of Mathematical Achievement in the Primary School Years: Description of Design, Sample, and Factor Analyses of Tests. Stanford: School Mathematics Study Group, Leland Stanford Junior University, 1971.

(2) ELMA Technical Reports Nos. 1-4. Stanford: School Mathematics Study Group, Leland Stanford Junior University, 1971. Available from A. C. Vroman, Inc., 1085 East Foothill Boulevard, Pasadena, California 91109.

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An advisory panel met with the research staff at periodic intervals and provided valuable suggestions. The members of this panel were:

E. G. Begle	Stanford University
R. P Dilworth	California Institute of Technology
Clarence Hardgrove	Northern Illinois University
Shirley Ann Hill	University of Missouri
Max Hosier	State College of Iowa
John Kelley	University of California, Berkeley
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Field coordination and technical editing were ably carried out by Terry Chay.

The data processing and calculation of statistical information were under the supervision of Edward J. Cruz and Raymond F. Rees.

Development of test items and pre-testing were the responsibility of Helen L. McCullough.

The administrative personnel of both school systems, including superintendents, department heads, curriculum coordinators, and school principals, were interested and cooperative throughout the course of this study. The teachers accepted, with equanimity and good humor, the movement of children in and out of their classrooms during the testing periods. The children were the sine qua non of this research to whom, lastly, our thanks are gratefully acknowledged.

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Chapter 1

DESCRIPTION OF THE STUDY

General Description of Results to be Presented

For each year of the study, predictions of scores on scales given at the end of the year will be made from scales given at the end of the previous year. For kindergarten, the tests given at the very beginning of the year will be used to predict the scores at the end of kindergarten.

To evaluate the effects of the two curricula and the two socio-economic levels, comparisons will be made among four groups or cells: low socio-economic SMSG (Low-SMSG), middle socio-economic SMSG (Middle-SMSG), low socio-economic group using the State's SRA text (Low-State), and the middle socio-economic group using the State text (Middle-State). Comparisons among these four cells will be made for each year using raw scores, and also using scores adjusted for performance at the end of the previous year. To obtain the adjusted scores, the best predictors obtained from stepwise regression analyses will be used.

Although the schools selected for the study had been grouped into low, and middle socio-economic clusters, there was some question as to the appropriateness of the classification for some schools. Because it was impossible to obtain socio-economic measures for the subjects, it was decided to use intelligence test scores to determine the adequacy of classification for the schools in a cell, since it has been shown[5] that different socio-economic levels differ in average scores on intelligence tests.

The text and socio-economic comparisons were done on two samples. One sample, the "selected" sample, consisted of all students included in analyses of texts and socio-economic effects who were present throughout a single year of the study. The other sample, the "longitudinal" sample, included only those students from the selected sample who were present from kindergarten through third grade. In the analyses performed to predict performance at the end of the year from the previous year by stepwise regression, the "total" sample was used. The total sample included all students who had scores on both the covariates and the dependent variables in a given stepwise regression analysis, and

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[5] See summary of studies of relation between IQ and socio-economic status in Shuey, A. M. The testing of Negro intelligence. (2nd ed.) New York: Social Science Press, 1966.

Description of Mathematics Program

Two curricula were used for the study. One was the California State curriculum, to be designated by the word "State" in this report. For the State curriculum, the SRA texts for kindergarten through third grade were used.[3] For the other curriculum, texts designed by the School Mathematics Study Group (SMSG), were used.[4] The SMSG program also used teacher's aides in most classes in kindergarten and first grade. Each curriculum was used in a low socio-economic cluster and in a middle socio-economic cluster. Throughout the study inservice programs were conducted with different programs used for the teachers in the two curricula.

Description of Testing Program

During the four years of the ELMA study, tests were administered to the children in the areas of mathematics, reading, general ability, and attitudes toward mathematics. Scales from all these types of tests, except the attitude tests, are included in the present report.

Mathematics test batteries were administered at the beginning of kindergarten, and at the end of each of the four years covered in the study. Mathematics test batteries were also given to part of the sample at the beginning of grades 1, 2, and 3 to measure retention over the summer, but these tests have not been included in the present report.

Individually administered intelligence tests included the Wechsler Pre-School and Primary Scale of Intelligence (administered in kindergarten), the Raven Progressive Matrices Test (given during first grade), and the Wechsler Intelligence Scale for Children (given in second grade). The schools administered the Metropolitan Readiness Test to the children at the beginning of first grade and the Kuhlmann-Anderson test at the beginning of the second grade. At the end of first, second, and third grades the schools gave some subtests from the Stanford Achievement Test to measure competence in reading.

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(3) Greater Cleveland Mathematics Program. California State Series 1965, K-3, Educational Research Council of Greater Cleveland, 1961-62.

(4) School Mathematics Study Group, Mathematics for the Elementary School, Books K and 1, Special Edition (Revised), Leland Stanford Junior University, 1966. School Mathematics Study Group, Mathematics for the Elementary School, Books 2 and 3 (Revised), Leland Stanford Junior University, 1965. Available from A. C. Vroman, Inc., 2085 East Foothill Boulevard, Pasadena, California 91109.

thus included the students who had been eliminated for text and socio-economic comparisons.

In addition to the analyses for each year, there was an analysis done to predict performance on end-of-third-grade scales from beginning-of-kindergarten scales; and socio-economic and text effects were studied by covariance analysis with adjustment made for performance on kindergarten scales.

Samples Used for Text and Socio-economic Comparisons

Average values for the intelligence tests were calculated for each school for each year to determine which of the schools in the original four cells were to be retained for analyses of socio-economic effects. A number of criteria were used to determine which of the schools to eliminate from the cell analyses of text and socio-economic effects. Schools were not used if there was a considerable shift in intelligence test scores during the study; i.e., if there was a systematic change in average intelligence test scores of the original students in successive years of the study. To insure that the two clusters of schools at each socio-economic level assigned to the two curricula were comparable, schools were eliminated if they had average intelligence test scores that were either higher or lower than any school in the other cluster at the same socio-economic level. It was found, for example, that one school within the lower socio-economic group had lower average intelligence test scores than any school found in the other low socio-economic grouping. Also, there were two schools in one of the middle groups that were above the average found in the other middle group. These three schools were dropped from the cell analyses. In addition, some schools were eliminated because their average intelligence test scores fell just at the borderline between the low and middle socio-economic groups.

Tables 1.1, 1.2, and 1.3 give the average scores for each of the schools by year for the Wechsler Preschool and Primary Scale of Intelligence (WPPSI), the Raven Progressive Matrices Test, and the Wechsler Intelligence Test for Children (WISC) for the original sample. (The WPPSI was given in kindergarten, the Raven test in first grade, and the WISC in second grade.) These three measures of intelligence were used because they did not include any arithmetic scales. For both the WPPSI and the WISC a total score was used which was the sum of the scale scores for the subtests, Block Design, Picture Completion, Vocabulary, and Similarities. The tables show the cells to which the schools had been assigned originally, and the asterisk next to a school code number shows that the school was retained for the cell analyses. More weight was

Table 1.1

Means, Standard Deviations and Sample Sizes by School and Grade
for the WPPSI Short Form Total Scaled Score
Original Students

Cell	School Number	Kindergarten			First Grade			Second Grade			Third Grade		
		MN	SD	N	MN	SD	N	MN	SD	N	MN	SD	N
SMSG-Low A1	10*	35.4	8.0	88	34.6	7.5	59	35.1	6.6	45	35.0	7.0	35
	14	34.7	6.7	52	34.3	7.2	39	34.0	6.4	28	33.6	6.6	22
	15*	38.6	8.4	47	36.6	9.0	24	38.1	8.5	15	39.0	9.0	12
	20*	37.2	7.5	110	38.3	7.5	73	38.2	7.9	60	38.5	8.0	51
SMSG-Middle B1	1	40.9	7.3	76	41.5	6.9	50	42.1	6.6	33	40.9	5.3	24
	3*	45.2	6.7	44	44.2	7.5	29	44.6	8.8	20	43.6	9.2	16
	5*	42.9	6.4	56	42.3	6.2	42	41.8	6.1	35	41.5	6.1	33
	6*	43.3	6.8	32	42.8	7.4	22	43.2	6.9	18	44.1	6.5	12
	12	50.0	7.1	31	50.1	7.2	24	51.7	7.2	13	51.8	7.6	12
	13*	43.4	7.4	59	42.9	7.5	44	43.6	6.7	35	44.6	6.5	28
	19	45.9	6.9	36	46.5	7.0	29	46.8	7.1	26	46.1	7.0	24
Stete-Low C1	2*	39.3	7.3	96	38.4	6.3	67	38.6	6.1	43	39.3	6.1	33
	7*	38.6	7.8	81	38.4	6.0	47	38.2	6.4	30	37.8	6.1	23
	18*	35.7	6.4	96	35.7	6.4	77	36.7	6.4	52	37.4	6.5	44
Stete-Middle D1	4	43.9	6.6	43	43.6	7.3	33	42.3	7.8	25	41.6	7.7	23
	8	39.4	7.1	29	39.8	7.0	20	38.4	7.3	14	38.4	6.3	9
	9*	42.5	7.8	66	44.2	8.1	31	44.5	6.3	32	45.9	6.1	21
	11*	45.5	5.1	22	45.3	5.1	21	45.1	4.7	17	44.8	4.7	16
	16*	44.7	8.3	25	44.2	8.8	14	41.6	5.8	9	42.7	4.9	7
	17*	41.8	7.8	30	42.1	7.5	21	42.3	8.1	17	43.0	8.1	14

*indicates schools whose students were included in text and socio-economic comparisons.

Table 1.2

Means, Standard Deviations and Sample Sizes by School and Grade
for the Raven Progressive Matrices Test Total Score
Original Students

Cell	School Number	First Grade			Second Grade			Third Grade		
		MN	SD	N	MN	SD	N	MN	SD	N
SMSG-Low A1	10*	13.7	2.7	58	13.9	2.9	44	14.2	3.0	35
	14	14.1	3.9	35	13.7	4.0	26	13.4	4.1	21
	15*	15.9	4.3	23	16.0	4.4	14	16.3	4.5	11
	20*	15.4	2.9	70	15.3	2.8	57	15.4	2.9	48
SMSG-Middle B1	1	16.3	4.1	50	16.5	3.8	33	15.6	3.4	24
	3*	17.1	3.4	29	16.8	3.0	20	17.1	3.0	17
	5*	18.0	4.1	40	17.9	4.2	34	17.8	4.3	32
	6*	19.1	4.5	21	19.4	4.6	18	19.4	5.0	13
	12	21.0	4.5	23	22.5	4.5	13	22.1	4.4	12
	13*	19.1	3.3	44	19.1	3.5	35	19.1	3.6	28
	19	19.8	5.3	30	20.4	5.2	27	20.0	5.3	25
State-Low C1	2*	15.5	3.6	65	15.8	3.5	42	16.0	3.8	33
	7*	15.7	4.0	44	16.0	4.7	29	15.8	4.9	23
	18*	13.3	3.3	75	13.9	3.4	52	14.0	3.5	44
State-Middle D1	4	18.2	5.0	32	17.8	4.9	24	17.3	4.8	22
	8	16.4	3.7	20	16.1	3.7	14	16.7	3.7	10
	9*	18.6	4.6	21	18.3	4.5	27	19.2	4.2	16
	11*	17.6	3.5	12	17.5	3.6	11	17.1	3.6	10
	16*	19.0	4.9	14	17.2	3.7	9	18.3	3.5	7
	17*	17.9	4.7	21	18.0	5.0	17	17.4	4.8	14

*indicates schools whose students were included in text and socio-economic comparisons.

Table 1.3

Means, Standard Deviations and Sample Sizes by School and Grade
for the WISC Short Form Total Scaled Score
Original Students

Cell	School Number	Second Grade			Third Grade		
		MN	SD	N	MN	SD	N
SMSG-Low A1	10*	39.0	6.2	46	38.3	5.0	36
	14	36.9	6.7	28	36.7	7.0	22
	15*	42.1	8.6	16	42.0	7.0	12
	20*	39.5	6.9	59	39.4	7.1	51
SMSG-Middle B1	1	43.6	7.5	33	42.6	6.8	24
	3*	45.2	8.0	19	45.1	7.5	15
	5*	48.5	8.7	36	48.7	8.9	34
	6*	48.9	8.2	19	49.8	8.8	13
	12	53.9	6.3	12	55.1	5.1	11
	13*	51.3	8.4	35	52.2	8.5	28
	19	53.8	9.2	21	52.9	8.8	25
State-Low C1	2*	40.9	7.9	43	41.1	8.8	33
	7*	39.4	7.0	30	39.0	6.3	23
	18*	38.3	7.3	54	38.5	7.5	47
State-Middle D1	4	41.1	7.5	23	40.2	7.1	21
	8	40.6	6.6	15	40.3	6.4	10
	9*	47.3	7.4	33	47.9	8.3	22
	11*	50.4	6.2	17	49.9	6.1	16
	16*	48.4	9.7	9	50.7	7.8	7
	17*	47.6	8.3	16	47.2	7.8	13

*indicates schools whose students were included in text and socio-economic comparisons.

given to the WPPSI and WISC in selecting schools for the analysis, but the results of the Raven test support the final classification.

For the students added at the end of first grade, only the WISC score was available. The WISC scores for these new students are shown by school in Table 1.4. Comparison of the WISC scores for the new students with the scores in Table 1.3 for the original students showed that in some schools the students entering the study in first grade differed appreciably on the WISC from those who had been in the study at the beginning. The new students who were in these same schools but differed from the original sample were not added to the sample for the cell analyses for the second grade and third grade. The school code numbers marked with an asterisk in Table 1.4 indicate the schools from which new students were added for analyses of socio-economic and text effects.

An average value of 44 was obtained for the WPPSI Total score for the two middle socio-economic groups in the selected sample in kindergarten. For the two low socio-economic groups, averages of 37 and 38 were obtained for the SMSG and State groups, respectively. (In the standardization sample for the WPPSI, a mean score of 10 had been obtained for each of the subscales of the WPPSI and an average score of 40 would therefore be expected for the WPPSI Total score in a sample which was comparable to the standardization sample.) The average value obtained for the WISC Total score was 48 for each of the two middle socio-economic groups for the selected sample in second grade, and 39 for each of the two low socio-economic groups. The average values for the WPPSI Total and the WISC Total scores in the longitudinal sample were very close to the results obtained with the selected sample.

Tests

The scales discussed in the present report were drawn from tests covering the general areas of mathematics, reading, and general ability. A list of all scales included in the report are given in Table A1.1 in the Appendix. The scales have been arranged by year except that those given at the beginning of first grade and second grade have been included with the scales given at the end of the previous year, since they will be discussed together with these scales in this report.

Mathematics Tests

Tests were administered at the beginning of kindergarten and at the end of each year of the study. Mathematics tests for the kindergarten year measured capacities in tasks thought to be prerequisite to mathematics learning, such as ability to recognize color and shapes and to develop classifications, as well

Table 1.4

Means, Standard Deviations and Sample Sizes by School and Grade
for the WISC Short Form Total Scaled Score
New Students

Cell	School Number	Second Grade			Third Grade		
		MN	SD	N	MN	SD	N
SMSG-Low A1	10*	37.0	6.7	24	37.0	6.5	13
	14	36.9	6.3	24	35.4	5.6	17
	15	[illegible]	4.3	6	32.5	2.1	2
	20*	37.7	6.4	9	37.4	6.3	5
SMSG-Middle B1	1	41.5	6.8	13	41.3	8.0	6
	3*	45.1	8.4	11	4[illegible]6	8.6	10
	5*	48.3	7.2	18	48.9	7.4	16
	6*	46.1	8.3	11	49.8	5.0	4
	12	49.5	8.3	11	48.6	8.1	10
	13	41.9	9.1	13	41.3	12.0	7
	19	52.3	7.2	22	52.2	7.5	20
State-Low C1	2	37.4	9.3	37	35.0	6.7	24
	7*	41.4	7.9	17	38.5	7.2	10
	18*	36.1	7.6	28	36.1	7.4	20
State-Middle D1	4	40.4	7.0	13	40.2	6.6	9
	8	37.8	5.1	35	38.4	5.2	23
	9	39.9	7.2	15	42.2	6.8	10
	11*	51.0	9.7	9	53.0	8.3	6
	16*	47.6	9.5	13	44.6	7.7	8
	17	41.6	4.8	11	42.9	5.0	8

*indicates schools whose students were included in text and socio-economic comparisons.

as tasks more directly related to mathematics. All mathematics tests were given to each child individually in kindergarten. After kindergarten, mathematics tests were given to children in small groups except for a few scales that were administered to children individually in the first grade.

A number of areas in mathematics were measured at the end of the first, second, and third grades. Scales were similar from year to year, but modifications were made by eliminating easier items and adding harder problems. The scales given each year from first grade to third grade were designed to measure the child's knowledge and understanding of number comparison, place value, number line, applications (word problems), rationals, and computation (addition, subtraction, and multiplication).

Tests of General Ability and of Reading

Individual intelligence tests were administered each year in the first three years of the study. In kindergarten, four scales in the Wechsler Preschool and Primary Scale of Intelligence (WPPSI) were given. The Raven Progressive Matrices Test (Raven) was given during first grade. The four scales of the Wechsler Intelligence Scale for Children (WISC) that corresponded to the four WPPSI scales given in kindergarten were given in second grade. In addition, a group-administered test of general ability, the Kuhlmann-Anderson test (K-A), was given by the schools at the beginning of second grade.

At the beginning of first grade, the Metropolitan Readiness Test (MRT) which measures vocabulary, mathematics, and some other skills, was administered by the schools. Reading scales from the Stanford Achievement Test (SAT) were administered by the schools at the end of first, second, and third grades. Both the Metropolitan Readiness Test and the Stanford Achievement Test were group-administered.

Codes Used to Distinguish Different Types of Scales

All mathematics scales were assigned a three-digit numeral code. All other types of scales were identified by a letter followed by a three-digit number. The reading scales from the SAT had the letter "A" preceding a three-digit number. The letter "M" was used to distinguish scales from intelligence tests. Scales obtained from the Metropolitan Readiness Test were identified by the letter "R" in the scale code.

Statistical Analyses Performed on the Data

Stepwise Regression

The method of stepwise regression was used to make the predictions of scores for the end of each year.[6] In all stepwise regressions, the total sample of subjects was used. The computer program was run until an F-value of less than 2.0 to enter was obtained for all variables not yet in the equation. In tables to be presented subsequently, the maximum value obtained for the multiple correlation using this criterion will be entered in the last line of the table. When variables entering the equation are shown, however, an earlier cutoff point will be used. The criterion used will be that all variables will be shown until the multiple correlation (R) is increased by less than .01.

Two types of tables will be presented with the cutoff point described above. The first type will show values of the multiple correlation as successive variables enter the equation. In these tables the first number for each entry will tell the order in which the variables entered the prediction equation, and the second number, following a semi-colon, will be the multiple correlation attained after the variable had entered the equation. The second table will show the regression equation with both the standardized and raw regression coefficients for the same variables included in the first table. In the second table the test for significance of the multiple correlation is omitted since it always gave highly significant results even when the R was very low.

Analysis of Variance

Text effects and socio-economic effects were investigated first by using a 2 × 2 analysis of variance design.[7] One of the factors was socio-economic level, and the two levels of this factor were a low socio-economic level and a middle socio-economic level. The other factor, text, represents the two curricula, State and SMSG.

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[6] For a description of calculations performed for the stepwise regressions, see BMD02R - Stepwise Regression in Dixon, W. J. (Ed.), "BMD Biomedical Computer Programs," University of California Publication in Automatic Computation, No. 2. Berkeley: University of California Press, 1970, pp. 233-257.

[7] For a description of the computer program used to compute analyses of variance see BMDX64 - General Linear Hypotheses in Dixon, W. J. (Ed.), "BMD Biomedical Computer Programs." University of California Publication in Automatic Computation, No. 3. Berkeley: University of California Press, 1970, pp. 34-50.

In the analyses of variance, overall effects were obtained for text and for socio-economic level (S.E.), and the interaction between the factors was obtained. Pairwise comparisons were also obtained for the following pairs of cells: (a) State low socio-economic group vs. SMSG low socio-economic group (given under "Text within Low" in the tables), (b) State middle socio-economic vs. SMSG middle socio-economic ("Text within Middle"), (c) low socio-economic SMSG vs. middle socio-economic SMSG ("S.E. within SMSG"), and (d) low socio-economic State vs. middle socio-economic State ("S.E. within State"). The tables will give F-values for each of the effects discussed above, and all F-values significant at the .05 level will be marked with an asterisk. For the pairwise comparisons, the significance level will be determined by using the values obtained for the comparison when considered alone rather than using a value obtained from a multiple comparison method. (Some further discussion of the rationale for the statsitics used will be given in a subsequent section of this chapter.)

Analysis of Covariance

To determine whether the differences between cells could be attributed to previous achievement, analyses of covariance were performed for each year with previous test scores used as covariates. The covariates used were the scales that had been the best predictors in the stepwise regressions. These covariates are given in tables describing the results of the stepwise regressions. The same general method[8] was used as described in the preceding section except that the covariates were added.

In place of the tables of raw scores presented with each analysis of variance, tables of adjusted scores (scores predicted from the covariates) will be given for each analysis of covariance. The F-values obtained in the covariance analysis for overall effects and for pairwise comparisons of groups will be shown in separate tables. In addition, the F-value and the associated probability (p) obtained in a test for heterogeneity of regression[9] are included as the last two columns in the table which has the results of the analysis of covariance.

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[8] The computer program BMDX64 was used to perform analyses of covariance. Ibid., pp. 34-50.

[9] For a description of the test used in the heterogeneity of regression analyses, see Wilson, J. W., and Carry, L. R. "Homogeneity of regression, its rationale, computation and use." American Educational Research Journal, 1969, 6, 80-90; and Geeslin, W. E. "A second comment on homogeneity of regression." American Educational Research Journal, 1970, 7, 636-638.

The test for heterogeneity of regression determines whether the regression plane estimated on the basis of all four groups fits each of the individual groups accurately. (The regression equations obtained in this analysis will be given in the Appendix.) For the tests in the analysis of covariance to be valid, the overall regression plane must provide a good fit for each group.

General Discussion of Statistics

As is the case with most educational research, the same set of data is used for many analyses. Thus, analyses are performed on many different variables given to the same subjects, and statistical tests are reported as if each sample were independent. Actually, a very complex multivariate design would be needed to take account of the dependencies among all the different variables.

Similarly, when the analyses of variance and covariance are performed and comparisons are then made on pairs of cells, the procedure followed here is to treat each of the pairwise comparisons as if it were made independently. Actually, some method of multiple comparison[10] should be used. There is, however, no method of multiple comparison that fits the present situation. The Scheffé method considers all possible contrasts rather than just comparisons of pairs of means which are of interest here, and none of the pairwise methods designed to consider only comparisons between pairs of means fit the present data. The method used here is one commonly used in educational research, however, and will provide a comparison with other studies (although the true probability level will not be that which is shown). If one wished to apply the Scheffé multiple comparison method to the present data, however, one would consider only those pairwise comparisons with an F-value of 7.8 or larger.

Since probabilities were not calculated so as to take account of the fact that many simultaneous inferences were made, the results of the study cannot be considered definitive but should be regarded as suggestions for areas to be explored in further studies. Throughout this report there will be some discussion of statistics obtained when the statistical tests do not pass the criterion of significance; these statistics should be considered as descriptive statistics rather than as statistics to which a probability level is attached (e. g., in covariance analyses, significant effects obtained will be mentioned although a significant degree of heterogeneity of regression is found to invalidate the statistical test).

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[10] For a summary of multiple comparison methods see Miller, R. G. Simultaneous statistical inference. New York: McGraw Hill Book Company, 1966.

Outline of Results to be Presented

The results for each year from kindergarten to third grade will be presented consecutively. For each year, stepwise regressions predicting scores obtained at the end of the year for the total sample will be presented first. Then text and socio-economic comparisons will be made for the tests administered during the year using analyses of variance and covariance. The text and socio-economic comparisons discussed with the stepwise regressions in Chapters 2 - 5 will be for the selected sample.

After the results for the stepwise regressions for the total sample and the text and socio-economic comparisons for the selected sample have been presented, results from analyses of variance and covariance for the longitudinal sample (students present from kindergarten through third grade) will be reported. First, the results of analyses of variance for the longitudinal sample will be presented for the beginning of kindergarten and for the end of each year from kindergarten through third grade. The chapter following these analyses of variance will give all the results of the covariance analyses from kindergarten through third grade for the longitudinal sample.

Finally, relationships between the end-of-third-grade scales and WISC scales and the beginning-of-kindergarten scales and WPPSI scales will be described. First, stepwise regressions with kindergarten scales as predictors will be given. Then socio-economic and text comparisons will be made for the end-of-third-grade scales and WISC scales in analyses of covariance with kindergarten scales used as covariates.

Chapter 2

END-OF-KINDERGARTEN SCALES: PREDICTIONS FROM BEGINNING-OF-KINDERGARTEN SCALES AND COMPARISONS BY TEXT AND SOCIO-ECONOMIC LEVEL

Predictions for the end-of-kindergarten scales will be made from the test given at the very beginning of kindergarten for the total sample. Some scales given at the beginning of first grade will be considered together with the end-of-kindergarten scales in all analyses.

Using analyses of variance, text and socio-economic comparisons will be made first for the scales from the test given at the beginning of kindergarten and from the WPPSI. Then the results from analyses of variance for the end of kindergarten scales will be presented. Finally, results of analyses of covariance for the end-of-kindergarten scales will be discussed with the best predictors from the initial mathematics inventory used as covariates. In all these comparisons to investigate text and socio-economic effects, the selected sample as defined in the previous chapter was used.

Scales Included in Analyses of Kindergarten Scales

Beginning-of-Kindergarten Scales

At the very beginning of kindergarten, a test battery (K-01) was given to measure performance on simple tasks or skills thought to be important for learning mathematics. The test was administered to the children individually and was composed mostly of performance scales. Among the skills and understandings measured in K-01 were knowledge of colors and of geometric shapes; ability to form classifications based on color, size, and shape; and ability to order shapes by size. Scales included in K-01 more closely related to mathematics measured performance in counting, forming equivalent sets, writing and identifying numerals, understanding of ordinal number, and knowledge of vocabulary basic to mathematics. There were also two visual memory scales administered, but these had rather low values for Cronbach's alpha.(11)

Scales from the WPPSI

The Wechsler Pre-school and Primary Scale of Intelligence (WPPSI) was given during the second half of the kindergarten year. Four subtests from the

(11) See Cronbach, L. J. "Coefficient alpha and the internal structure of tests." Psychometrika, 1951, 15, 297-334.

WPPSI were given: two were verbal tests; Vocabulary and Similarities, and two were performance tests, Block Design and Picture Completion. A scale score was used for each of the four subtests, and a total score was computed from the sum of the scale scores of the subtests.

End-of-Kindergarten Common Scales and MRT Scales

Analyses of end-of-kindergarten common scales included scales from the Metropolitan Readiness Test (MRT) given at the very beginning of first grade and those scales, given to all children in the study, which were administered as part of the mathematics test battery (K-02) at the end of kindergarten. The scales from the MRT were included with the kindergarten scales since they were given very early in the school year. Included in the MRT were scales relating to reading, to mathematics, and to some more general abilities. The common scales from the end of kindergarten were similar to some of the scales given at the beginning of kindergarten. They measured performance in counting, forming equivalent sets, ordering, classifying, and identifying geometric shapes.

End-of-Kindergarten Subpopulation Scales

In addition to the common scales of the K-02 battery, described in the previous section, there were four groups of scales in K-02 given to four randomly selected parts of the population. (These subpopulation scales in the K-02 battery were administered to only part of the sample because the time that would have been required to give all the scales to each child exceeded the testing time that was feasible.) The four forms given to the subpopulations were labeled by the letters W, X, Y, Z, and scales used in each of these populations were identified by a letter. Most of these scales were similar to some scales in the K-01 test except for scales which were added to measure abilities in conservation of number and ordering of sets.

Results of the Stepwise Regressions

Predictions for End-of-Kindergarten Common Scales, MRT, and WPPSI

The means and standard deviations for the K-01 scales used as predictors and for the dependent variables, which include the common K-02 scales, the WPPSI scales and the MRT scales, are shown in Table 2.1. The means and standard deviations for the K-01 scales are those obtained in the prediction of K-02 scales. The statistics for the K-01 scales, derived from the stepwise regressions for the MRT, are given in Table A2.1 of the Appendix. The sample size for the stepwise regressions for the MRT was reduced considerably from that for the other analyses due to the large attrition over the summer.

Table 2.1

Means and Standard Deviations
of Beginning-of-Kindergarten Scales and End-of-Kindergarten Common Scales
Total Sample

Covariate Scales		MN	SD
K-01 Scales (N = 1062)			
Geom Shape: Name	002	1.45	1.44
Geom Shape: Ident	003	2.48	1.25
Count Buttons	004	4.41	2.56
Write Numerals	005	1.05	1.92
Count Set PC	006	4.15	2.90
Ident Numerals	007	4.49	3.02
Vis Mem Obj	008	3.21	1.27
Vocabulary	010	14.82	2.94
Equiv Sets: Dots	012	3.17	2.13
Ordinal No.	013	3.64	1.82
Order Geom Shapes	014	0.83	0.87
Classify	015	4.29	1.98
Rote Count	016	1.53	1.60
Vis Mem Pict	017	1.12	1.04
Color Name	020	5.87	1.83
Color Ident	021	5.21	1.60

Dependent Variable Scales		MN	SD
K-02 Common Scales (N = 1062)			
Geom Shape: Ident	104	4.49	0.91
Count Set: PC	110	6.57	2.84
Count Set: Obj	111	7.46	2.64
Equiv Sets: Obj	118	4.37	1.90
Equiv Sets: Dots	119	4.84	1.58
Classify S-2	130	5.37	1.16
Order Comp	147	5.99	3.67
MRT Scales (N = 609)			
Word Mean	R201	9.33	3.00
Listen	R202	10.73	2.60
Match	R203	9.01	3.33
Alphabet	R204	12.11	3.87
Numbers	R205	13.11	4.07
Copy	R206	5.44	2.52
WPPSI Scales (N = 999)			
Vocabulary	M112	9.39	2.98
Similarities	M114	10.28	2.82
Pict Compl	M117	9.86	2.69
Block Design	M120	10.64	2.72

Note: Statistics obtained from stepwise regressions using the K-01 scales as covariates. The K-01 statistics are from regressions of K-02 scales.

Successive values attained by the multiple correlation coefficient (R) as the K-01 scales entered the prediction equation are given in Table 2.2. Values were recorded until a variable contributed less than .01 to the value of the multiple R. The first number for each entry gives the order in which the K-01 variables entered the prediction equation and the second number is the value attained by the multiple R after the variable had entered the equation. (The correlation matrices on which the analyses were based are given in the Appendix in Table A2.2.) Regression equations are shown in Table 2.3 with the same predictor variables included as were included in Table 2.2.

The maximum value of the multiple R is given in the last line of Table 2.2. The values obtained for the maximum multiple R fall in the range .37 - .68 except for the scale Geometric Shapes - Identifying (104) for which the multiple R dropped to .28. The most predictable scale was the scale Numbers (R205) from the MRT.

Counting Buttons (004) was the first scale of the beginning-of-kindergarten scales to enter the prediction equation for most of the common scales of the K-02 battery. The standardized regression weight was somewhat larger for 004 than for the other variables entering the prediction equations for most of the common K-02 scales (see Table 2.3).

For the WPPSI and the MRT scales, Counting Buttons played a less important role in the prediction equations. Although it entered the equations for all the WPPSI scales, it was the first variable to enter only for Similarities (M114); and in the regression equation for M114 the magnitude of the standardized regression coefficient was about the same as the coefficients for the other variables entering the equation. The K-01 scale Vocabulary (010) was the best predictor for the WPPSI Vocabulary scale (M112); while Equivalent Sets: Dots (012) was the best predictor for the two performance scales, Picture Completion (M117) and Block Design (M120).

For the MRT, Counting Buttons (004) was the best predictor for Matching (R203) and Copying (R206). Vocabulary (010) was the best predictor for Word Meaning (R201) and Listening (R202), and Identification of Numerals (007) was the best predictor for Alphabet (R204). In the case of Numbers (R205), the standardized regression coefficients had almost the same value for Counting Buttons and Identification of Numerals, the scales entering as the first two variables in the prediction equations.

Prediction of End-of-Kindergarten Common Scales in Subpopulations

In order to determine how comparable results obtained for the different subpopulation scales would be, the stepwise regressions were rerun for the

Table 2.2

Order of Entry and Multiple Correlations
between End-of-Kindergarten Common Scales and Beginning-of-Kindergarten Scales
Total Sample

Covariates: K-01 Scales	Dependent Variables: K-02 Common Scales						
	104	110	111	118	119	130	147
Geom Shape: Name 002							
Geom Shape: Ident 003							
Count Buttons 004	1; .23	1; .42	1; .34	1; .41	1; .44	1; .40	1; .49
Write Numerals 005							
Count Set: PC 006		2; .45			3; .49		
Ident Numerals 007							
Vis Mem Obj 008							
Vocabulary 010						2; .44	
Equiv Sets: Dots 012	3; .28	3; .46	2; .36	2; .45	2; .48		2; .53
Ordinal No. 013							4; .56
Order Geom Shapes 014							3; .55
Classify 015						3; .45	
Rote Count 016			3; .37				
Vis Mem Pict 017							
Color Name 020	2; .26						
Color Ident 021							
Maximum Multiple R	.28	.48	.39	.47	.51	.46	.57

(continued)

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the multiple R when the F-value to enter is less than 2.0.

Table 2.2

(second page)

Covariates: K-01 Scales	Dependent Variables: WPPSI Scales			
	M112	M114	M117	M120
Geom Shape: Name 002				
Geom Shape: Ident 003	3; .47	2; .31		
Count Buttons 004	2; .45	1; .26	2; .36	1; .37
Write Numerals 005				
Count Set: PC 006				4; .45
Ident Numerals 007				
Vis Mem Obj 008				
Vocabulary 010	1; .42	3; .33		
Equiv Sets: Dots 012			1; .32	2; .43
Ordinal No. 013				
Order Geom Shapes 014				3; .44
Classify 015			3; .38	
Rote Count 016				
Vis Mem Pict 017				
Color Name 020				
Color Ident 021				
Maximum Multiple R	.49	.37	.40	.47

(continued)

Table 2.2

(third page)

Covariates: K-01 Scales	Dependent Variables: MRT Scales					
	R201	R202	R203	R204	R205	R206
Geom Shape: Name 002						
Geom Shape: Ident 003						
Count Buttons 004	3; .54	2; .48	1; .43		2; .62	1; .42
Write Numerals 005			4; .50			3; .50
Count Set: PC 006						
Ident Numerals 007				1; .51	1; .57	
Vis Mem Obj 008						
Vocabulary 010	1; .47	1; .42		3; .56		
Equiv Sets: Dots 012			2; .47			4; .52
Ordinal No. 013						
Order Geom Shapes 014			3; .49			2; .47
Classify 015	2; .52	3; .50	5; .51		3; .65	
Rote Count 016					4; .66	
Vis Mem Pict 017						
Color Name 020				2; .54		
Color Ident 021						
Maximum Multiple R	.56	.52	.52	.57	.68	.53

Table 2.3
Regression Equations for Prediction of
End-of-Kindergarten Scales From Beginning-of-Kindergarten Scales
Total Sample

A. Common Mathematics Scales from K-02 Test

DEPENDENT VARIABLE 104 GEO SHAP:IDFY

STEP NUMBER 3

MULTIPLE R 0.2761
STD. ERROR OF EST. 0.8711

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.77425)				
004	COUNT BUTTONS	0.0439	0.1243	0.01302	11.3943
012	EQIV SETS:DOTS	0.0375	0.0882	0.01425	6.9073
020	COLOR:NAMING	0.0680	0.1371	0.01690	16.1659

DEPENDENT VARIABLE 110 COUNT MEMS:PC

STEP NUMBER 3

MULTIPLE R 0.4613
STD. ERROR OF EST. 2.5222

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 4.05739)				
004	COUNT BUTTONS	0.2968	0.2677	0.03919	57.3591
006	COUNT MEMS:PC	0.1495	0.1528	0.03337	20.0615
012	EQIV SETS:DOTS	0.1832	0.1375	0.04177	19.2461

DEPENDENT VARIABLE 111 CNT MEMS:OBJS

STEP NUMBER 3

MULTIPLE R 0.3734
STD. ERROR OF EST. 2.4539

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 5.64708)				
004	COUNT BUTTONS	0.2247	0.2177	0.03627	38.3726
012	EQIV SETS:DOTS	0.1634	0.1318	0.04019	16.5323
016	ROTE COUNTING	0.1955	0.1183	0.05381	13.1980

(continued)

Table 2.3
(second page)

A. Common Mathematics Scales from K-02 Test (continued)

DEPENDENT VARIABLE 118 EQIV SETS:OBJS

STEP NUMBER 2

MULTIPLE R 0.4482
STD. ERROR OF EST. 1.7020

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 2.75857)				
004	COUNT BUTTONS	0.2401	0.3231	0.02308	108.2009
012	EQIV SETS:DOTS	0.1736	0.1945	0.02774	39.1888

DEPENDENT VARIABLE 119 EQIV SETS:DOTS

STEP NUMBER 3

MULTIPLE R 0.4909
STD. ERROR OF EST. 1.3803

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.34223)				
004	COUNT BUTTONS	0.1701	0.2753	0.02145	62.9057
006	COUNT MEMS:PC	0.0674	0.1236	0.01826	13.6178
012	EQIV SETS:DOTS	0.1477	0.1988	0.02286	41.7292

DEPENDENT VARIABLE 130 CLASFY(OVRLAP)

STEP NUMBER 3

MULTIPLE R 0.4519
STD. ERROR OF EST. 1.0385

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.58897)				
004	COUNT BUTTONS	0.1180	0.2599	0.01486	63.1013
010	VOCABULARY	0.0607	0.1533	0.01292	22.0810
015	CLASSIFYING	0.0843	0.1437	0.01918	19.3103

(continued)

Table 2.3
(third page)

A. Common Mathematics Scales from K-02 Test (continued)

DEPENDENT VARIABLE 147 ORDRG:COMPOS

STEP NUMBER 4

MULTIPLE R 0.5639
STD. ERROR OF EST. 3.0343

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 1.70492)				
004	COUNT BUTTONS	0.4054	0.2830	0.04528	80.1391
012	EQIV SETS:DOTS	0.3211	0.1865	0.05044	40.5162
013	ORDINAL NUMBER	0.2517	0.1248	0.06069	17.1970
014	ORDRG:GEO SHAP	0.6761	0.1596	0.11851	32.5480

(continued)

Table 2.3
(fourth page)

B. WPPSI Scales

DEPENDENT VARIABLE M112 VOCB:WPSI SCA

STEP NUMBER 3

MULTIPLE R 0.4747
STD. ERROR OF EST. 2.6252

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.82467)				
003	GEO SHAP:IDFY	0.3727	0.1561	0.07157	27.1252
004	COUNT BUTTONS	0.1940	0.1671	0.03696	27.5487
010	VOCABULARY	0.2926	0.2887	0.03292	78.9690

DEPENDENT VARIABLE M114 SIML:WPSI SCA

STEP NUMBER 3

MULTIPLE R 0.3320
STD. ERROR OF EST. 2.6594

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 6.73073)				
003	GEO SHAP:IDFY	0.3074	0.1362	0.07250	17.9759
004	COUNT BUTTONS	0.1746	0.1591	0.03744	21.7481
010	VOCABULARY	0.1362	0.1422	0.03335	16.6863

DEPENDENT VARIABLE M117 P.CM:WPSI SCA

STEP NUMBER 3

MULTIPLE R 0.3766
STD. ERROR OF EST. 2.4995

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 7.66827)				
004	COUNT BUTTONS	0.1542	0.1468	0.03716	17.2083
012	EQIV SETS:DOTS	0.2571	0.2035	0.04302	35.7166
015	CLASSIFYING	0.1664	0.1220	0.04640	12.8579

(continued)

Table 2.3
(fifth page)

B. WPPSI Scales (continued)

DEPENDENT VARIABLE M120 BLKD:WPSI SCA

STEP NUMBER 4

MULTIPLE R 0.4531
STD. ERROR OF EST. 2.4260

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 8.28887)				
004	COUNT BUTTONS	0.1648	0.1556	0.03954	17.3624
006	COUNT MEMS:PC	0.1223	0.1305	0.03332	13.4792
012	EQIV SETS:DOTS	0.2591	0.2034	0.04180	38.4126
014	ORDRG:GEO SHAP	0.3721	0.1186	0.09534	15.2316

(continued)

Table 2.3
(sixth page)

C. Metropolitan Readiness Test Scales (MRT)

DEPENDENT VARIABLE — R201 WORD MEAN:MRT

STEP NUMBER 3

MULTIPLE R 0.5405
STD. ERROR OF EST. 2.5311

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 2.62000)				
004	COUNT BUTTONS	0.2177	0.1850	0.04753	20.9811
010	VOCABULARY	0.2972	0.2925	0.04105	52.4101
015	CLASSIFYING	0.3003	0.1966	0.06143	23.8921

DEPENDENT VARIABLE — R202 LISTENING:MRT

STEP NUMBER 3

MULTIPLE R 0.4981
STD. ERROR OF EST. 2.2567

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 5.59493)				
004	COUNT BUTTONS	0.2161	0.2123	0.04238	26.0090
010	VOCABULARY	0.2169	0.2467	0.03660	35.1188
015	CLASSIFYING	0.2163	0.1637	0.05477	15.5960

DEPENDENT VARIABLE — R203 MATCHING:MRT

STEP NUMBER 5

MULTIPLE R 0.5115
STD. ERROR OF EST. 2.8734

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 5.50308)				
004	COUNT BUTTONS	0.2948	0.2257	0.05681	26.9263
005	WRITE NUMERALS	0.2044	0.1147	0.06888	8.8057
012	EQIV SETS:DOTS	0.2418	0.1549	0.06350	14.5040
014	ORDRG:GEO SHAP	0.4401	0.1142	0.14793	8.8525

(continued)

Table 2.3
(seventh page)

C. Metropolitan Readiness Test Scales (MRT) (continued)

DEPENDENT VARIABLE — R204 ALPHABET:MRT

STEP NUMBER 3

MULTIPLE R 0.5598
STD. ERROR OF EST. 3.2158

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 4.78427)				
007	IDFY NUMERALS	0.4827	0.3767	0.05035	91.9075
010	VOCABULARY	0.1923	0.1467	0.04952	15.0860
020	COLOR:NAMING	0.3899	0.1739	0.08540	20.8391

DEPENDENT VARIABLE — R205 NUMBERS:MRT

STEP NUMBER 4

MULTIPLE R 0.6589
STD. ERROR OF EST. 3.0747

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 7.54587)				
004	COUNT BUTTONS	0.3836	0.2401	0.06931	30.6313
007	IDFY NUMERALS	0.3484	0.2584	0.05813	35.9294
015	CLASSIFYING	0.4056	0.1956	0.07355	30.4196
016	ROTE COUNTING	0.3525	0.1371	0.09219	14.6197

DEPENDENT VARIABLE — R206 COPYING:MRT

STEP NUMBER 4

MULTIPLE R 0.5172
STD. ERROR OF EST. 2.1676

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.23536)				
004	COUNT BUTTONS	0.2323	0.2347	0.04162	31.1477
005	WRITE NUMERALS	0.2539	0.1880	0.05136	24.4412
012	EQIV SETS:DOTS	0.1502	0.1269	0.04675	10.3160
014	ORDRG:GEO SHAP	0.5265	0.1802	0.11010	22.8670

common scales in subpopulations X, Y, and Z. (The W-population was omitted from this analysis because the Visual Memory scales, which were the only subpopulation scales given to this group, had low values for Cronbach's alpha and were unrelated to other scales in the study.[12] The maximum multiple correlations obtained for each of the common K-02 scales in the three subpopulations are shown in the first three columns of Table 2.4, and the results for the total population, given previously, are shown in the last column of this table. (See Table A2.3 in the Appendix for the means and standard deviations for K-01 scales and common K-02 scales in the subpopulations.) The magnitude of the multiple correlation obtained for each scale in the three subpopulations was fairly constant. The most fluctuation occurred for Geometric Shapes - Identifying (104).

Standardized regression coefficients for the common scales are shown in Table 2.5 for the three subpopulations. As can be seen from the table, there were considerable differences among the three subpopulations both in the covariates entering the equation and in the magnitude of the standardized regression coefficients. Counting Buttons (004) still maintained the prominent role in the prediction equations in the subpopulations that it had in the total population; but the standardized regression ceofficients were not as large, compared to those for other covariates, as had been the case in the total population.

Comparison of the results obtained in the three subpopulations in the stepwise regressions for common end-of-kindergarten scales indicates that the magnitude of the multiple correlations obtained in the subpopulations can be considered representative of those that would be obtained in the total population. The fluctuations in the covariates entering the equation and in the magnitudes of the regression coefficients in different subpopulations suggest that these statistics must be considered somewhat tentative when obtained in subpopulations.

Predictions of End-of-Kindergarten Subpopulation Scales

The means and standard deviations for the subpopulation scales of the K-02 battery for which stepwise regressions were run are shown in Table 2.6. Multiple correlations and regression equations are shown in Tables 2.7 and 2.8, with the correlation matrices given in Table A2.4. The multiple correlations ranged from .54 - .70 for all scales except Geometric Shapes - Naming (102Y) for

(12)See ELMA Report No. 1, A Longitudinal Study of Mathematical Achievement in the Primary School Years, Description of Design, Sample, and Factor Analyses of Tests for a factor analyses of the visual memory scales together with the other end-of-kindergarten scales.

Table 2.4

Maximum Multiple Correlations within Subpopulations
between End-of-Kindergarten Common Scales and Beginning-of-Kindergarten Scales

Dependent Variables: K-02 Common Scales	Maximum Multiple R			
	X-Pop	Y-Pop	Z-Pop	Total Pop (W+X+Y+Z)
Geom Shape: Ident 104	.25	.41	.35	.28
Count Set: PC 110	.50	.51	.44	.48
Count Set: Obj 111	.46	.49	.37	.39
Equiv Sets: Obj 118	.54	.49	.44	.47
Equiv Sets: Dots 119	.58	.55	.46	.51
Classify S-2 130	.59	.48	.48	.46
Order Comp 147	.69	.62	.53	.57
(Sample Sizes)	(N = 280)	(N = 252)	(N = 263)	(N = 1062)

Table 2.5

Covariates and Their Standardized Regression Coefficients Used for Prediction of End-of-Kindergarten Common Scales within Subpopulations from Beginning-of-Kindergarten Scales

Dependent Variables: K-02 Common Scales	Covariates: K-01 Scales					
	X-Population		Y-Population		Z-Population	
	Scale No.	STDZ	Scale No.	STDZ	Scale No.	STDZ
Geom Shape: Ident 104	007 020	.13 .17	004 012 021	.16 .13 .20	002 004 008 020	.12 .18 .10 .11
Count Set: PC 110	004 006 016	.22 .23 .14	004 006	.28 .26	004 012	.32 .18
Count Set: Obj 111	006 007 010 016 020	.17 .23 .14 .11 -.18	004 006 014 016	.16 .20 .13 .15	004 007 008	.19 .15 .15
Equiv Sets: Obj 118	004 007 012	.28 .18 .16	004 006 014 021	.22 .18 .14 .09	004 007 012	.19 .18 .14
Equiv Sets: Dots 119	004 007 012 017	.28 .17 .16 .15	004 006 014	.31 .19 .18	004 012 021	.24 .19 .15
Classify S-2 130	004 010 015	.31 .17 .21	004 015 020	.22 .13 .23	004 010 020 021	.23 .19 .39 -.28
Order Comp 147	004 010 012 014	.34 .18 .20 .19	004 012 014	.39 .23 .13	004 010 012 014	.23 .15 .14 .18
(Sample Sizes)	(N = 280)		(N = 252)		(N = 263)	

Note: Results obtained from stepwise regressions.

"Scale No." refers to the covariate scales that increase the multiple R by .01 or more for a given dependent variable.

"STDZ" is the standardized regression coefficient.

Table 2.6

Means and Standard Deviations
of End-of-Kindergarten Subpopulation Scales

K-02 Subpopulation Scales		MN	SD
X-Pop Scales (N = 279)			
Count Buttons	106X	7.82	2.07
Write Numerals	108X	4.63	2.97
Ident Numerals	113X	8.61	2.38
Vocabulary	117X	15.30	3.08
Y-Pop Scales (N = 252)			
Geom Shape: Name	102Y	4.29	1.02
Ordinal Number	120Y	5.61	1.99
Classify S-1	128Y	6.32	1.67
Classify	129Y	13.65	2.87
Z-Pop Scales (N = 262)			
Order Sets Obj	137Z	1.68	1.25
Order Sets PC	139Z	1.82	1.26
Conservation	146Z	8.40	3.03

Note: Statistics obtained from stepwise regressions using the K-01 scales of Table 2.1 as covariates.

Table 2.7

Order of Entry and Multiple Correlations
between End-of-Kindergarten Subpopulation Scales
and Beginning-of-Kindergarten Scales

Covariates:	Dependent Variables: K-02 Subpopulation Scales					
K-01 Scales	106X	108X	113X	117X	102Y	120Y
Geom Shape: Name 002						
Geom Shape: Ident 003		3; .51	3; .62			
Count Buttons 004	1; .56				2; .41	1; .60
Write Numerals 005		2; .49				
Count Set: PC 006						
Ident Numerals 007		1; .45	1; .55	4; .69		
Vis Mem Obj 008						
Vocabulary 010	2; .58	5; .53		1; .63		
Equiv Sets: Dots 012				2; .66		
Ordinal No. 013						
Order Geom Shapes 014						2; .64
Classify 015						
Rote Count 016						3; .68
Vis Mem Pict 017	3; .60			3; .68		
Color Name 020		4; .52	2; .60		1; .38	
Color Ident 021						
Maximum Multiple R	.61	.54	.63	.70	.42	.69

(continued)

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the Multiple R when the F-value to enter is less than 2.0.

Table 2.7

(second page)

Covariates: K-01 Scales	Dependent Variables: K-02 Subpopulation Scales				
	128Y	129Y	137Z	139Z	146Z
Geom Shape: Name 002					
Geom Shape: Ident 003					
Count Buttons 004	1; .45	1; .49	1; .51	1; .54	1; .54
Write Numerals 005					
Count Set: PC 006					
Ident Numerals 007					
Vis Mem Obj 008					
Vocabulary 010					2; .57
Equiv Sets: Dots 012					3; .58
Ordinal No. 013			2; .55	2; .57	
Order Geom Shapes 014			3; .57		
Classify 015	3; .52	3; .56	4; .58		
Rote Count 016					
Vis Mem Pict 017					4; .60
Color Name 020	2; .51	2; .55			
Color Ident 021					
Maximum Multiple R	.55	.57	.59	.60	.60

Table 2.8
Regression Equations for Prediction of
End-of-Kindergarten Subpopulation Scales
from Beginning-of-Kindergarten Scales

A. Mathematics Scales in K-02 Given to Subpopulation X

DEPENDENT VARIABLE 106 COUNT BUTNS

STEP NUMBER 3

MULTIPLE R 0.6021
STD. ERROR OF EST. 1.6597

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.96784)				
004	COUNT BUTTONS	0.3550	0.4385	0.04576	60.1933
010	VOCABULARY	0.1276	0.1861	0.03856	10.9481
017	VIS MEMRY:PICT	0.3231	0.1601	0.09816	10.8311

DEPENDENT VARIABLE 108 WRITE NUMERALS

STEP NUMBER 5

MULTIPLE R 0.5324
STD. ERROR OF EST. 2.5374

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 2.47481)				
003	GEO SHAP:IDFY	0.3897	0.1690	0.12875	9.1589
005	WRITE NUMERALS	0.3228	0.2158	0.08943	13.0338
007	IDFY NUMERALS	0.2719	0.2808	0.06664	16.6430
010	VOCABULARY	-0.1276	-0.1296	0.06037	4.4704
020	COLOR:NAMING	0.2429	0.1464	0.09926	5.9887

DEPENDENT VARIABLE 113 IDFY NUMERALS

STEP NUMBER 3

MULTIPLE R 0.6200
STD. ERROR OF EST. 1.8784

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 4.48792)				
003	GEO SHAP:IDFY	0.2781	0.1505	0.09287	8.9693
007	IDFY NUMERALS	0.2977	0.3835	0.04206	50.1009
020	COLOR:NAMING	0.3469	0.2608	0.07155	23.5107

(continued)

Table 2.8
(second page)

A. Mathematics Scales in K-02 Given to Subpopulation X (continued)

DEPENDENT VARIABLE 117 VOCABULARY

STEP NUMBER 4

MULTIPLE R 0.6892
STD. ERROR OF EST. 2.2478

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 5.94777)				
007	IDFY NUMERALS	0.1583	0.1577	0.05228	9.1731
010	VOCABULARY	0.5109	0.5003	0.05093	100.6472
012	EQIV SETS:DOTS	0.1892	0.1332	0.07043	7.2172
017	VIS MEMRY:PICT	0.4401	0.1464	0.13521	10.5967

(continued)

Table 2.8
(third page)

B. Mathematics Scales in K-02 Given to Subpopulation Y

DEPENDENT VARIABLE 102 GEO SHAP:NAME

STEP NUMBER 2

MULTIPLE R 0.4145
STD. ERROR OF EST. 0.9297

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.06477)				
004	COUNT BUTTONS	0.0782	0.1986	0.02696	8.4022
020	COLOR:NAMING	0.1505	0.2721	0.03790	15.7760

DEPENDENT VARIABLE 120 ORDNAL NUMBERS

STEP NUMBER 3

MULTIPLE R 0.6758
STD. ERROR OF EST. 1.4787

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.27133)				
004	COUNT BUTTONS	0.3240	0.4201	0.04166	60.4972
014	ORDRG:GEO SHAP	0.5328	0.2383	0.10961	23.6307
016	ROTE COUNTING	0.3118	0.2358	0.06942	20.1727

DEPENDENT VARIABLE 128 CLASSIFYING-S1

STEP NUMBER 3

MULTIPLE R 0.5237
STD. ERROR OF EST. 1.4281

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.79395)				
004	COUNT BUTTONS	0.1781	0.2763	0.04208	17.9075
015	CLASSIFYING	0.1352	0.1510	0.05575	5.8816
020	COLOR:NAMING	0.1969	0.2173	0.06185	10.1290

(continued)

Table 2.8
(fourth page)

B. Mathematics Scales in K-02 Given to Subpopulation Y (continued)

DEPENDENT VARIABLE 129 CLASSIFYING

STEP NUMBER 3

MULTIPLE R 0.5629
STD. ERROR OF EST. 2.3875

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT	9.02698)			
004	COUNT BUTTONS	0.3477	0.3131	0.07036	24.4243
015	CLASSIFYING	0.2248	0.1458	0.09320	5.8202
020	COLOR:NAMING	0.3596	0.2303	0.10340	12.0933

(continued)

Table 2.8
(fifth page)

C. Mathematics Scales in K-02 Given to Subpopulation Z

DEPENDENT VARIABLE 137 ORDRG:SET OBJS

STEP NUMBER 4

MULTIPLE R 0.5804
STD. ERROR OF EST. 1.0228

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 0.14598)				
004	COUNT BUTTONS	0.1519	0.3177	0.02937	26.7542
013	ORDINAL NUMBER	0.0978	0.1461	0.04124	5.6210
014	ORDRG:GEO SHAP	0.2371	0.1605	0.08387	7.9944
015	CLASSIFYING	0.0856	0.1356	0.03864	4.9080

DEPENDENT VARIABLE 139 ORDR:PICT SETS

STEP NUMBER 2

MULTIPLE R 0.5664
STD. ERROR OF EST. 1.0419

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 0.45191)				
004	COUNT BUTTONS	0.2211	0.4576	0.02781	63.2115
013	ORDINAL NUMBER	0.1250	0.1848	0.03892	10.3100

DEPENDENT VARIABLE 146 CNSRVATN CMPOS

STEP NUMBER 4

MULTIPLE R 0.5970
STD. ERROR OF EST. 2.4509

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 2.99859)				
004	COUNT BUTTONS	0.4308	0.3703	0.06971	38.1953
010	VOCABULARY	0.1645	0.1576	0.05898	7.7758
012	EQIV SETS:DOTS	0.2427	0.1680	0.08198	8.7611
017	VIS MEMRY:PICT	0.3634	0.1259	0.14843	5.9934

which the multiple correlation had a value of R = .42. In the stepwise regressions for the common (K-02) scales, Geometric Shapes - Identifying (104) had been the least predictable scale.

In the X-Population, the corresponding scale from the K-01 test battery was the first variable to enter the equation for Counting Buttons (106X), Identification of Numerals (113X), and Vocabulary (117X); and these scales had a somewhat larger standardized regression weight than the other variables entering the equation. For Writing Numerals (108X), Identification of Numerals (007) entered the equation first and Writing Numerals (005) was second. Counting Buttons (004) from the K-01 battery was the principal predictor for all the scales from the Y-population, except for Geometric Shapes - Naming (102Y), and all scales in the Z-population. Counting Buttons was the first scale to enter the prediction equations and had larger standardized regression weights than the other scales. Because of the lack of stability of results for stepwise regressions of common scales in the subpopulations, discussed in the previous section, the covariates entering the stepwise regression and the magnitudes of the regression coefficients might be different in a new sample.

Text and Socio-economic Comparisons

The effect of curriculum and of socio-economic level on mathematics performance was studied by comparing selected groups. Students present at the end of kindergarten were classified by curriculum (State or SMSG) and by the two socio-economic levels. (As discussed in the previous chapter, the sample used for this analysis, the selected sample, does not include all subjects which had been used for the stepwise regressions.) In addition, 30 subjects in one school in the Middle-State cell (School 17) were eliminated for the analysis of kindergarten scales involving text and socio-economic comparisons because their teacher used both curricula; and five students (in School 20) were eliminated from the Low-State cell because their teacher had not participated in the inservice training.

Analyses of variance were performed on the beginning-of-kindergarten scale scores to provide a background for evaluation of results obtained at the end of the year. For the end-of-kindergarten scales, analyses of variance were first performed and then analyses of covariance were carried out with adjustments made for performance on entering kindergarten.

Comparisons of Cells at the Beginning of Kindergarten

To aid in the interpretation of achievement at the end of kindergarten, comparisons of the cells were made on scales given at the beginning of

kindergarten. Scales from the WPPSI will also be discussed in this section, although the test was given during the second half of kindergarten and the results on the test might have been affected by the school curriculum. (Classes that were not using the appropriate curriculum in kindergarten were omitted from these analyses.)

K-01 scales. The means and standard deviations for the scales in the K-01 battery are given in Table 2.9A, and the results of the analyses of variance are shown in Table 2.9B. Significant overall socio-economic (S.E.) effects were found for almost all scales in the K-01 test battery. Comparisons of the middle and low socio-economic groups separately in each curriculum showed that the middle socio-economic groups obtained higher scores on almost all scales, but there were some exceptions (see the last two columns in Table 2.9B). In the SMSG curriculum, there were no significant socio-economic differences in Visual Memory - Objects (008), the three geometry scales (001, 002, 003), or in the tester's rating, Attention to Tasks (023). In the State curriculum, no differences were found in Writing Numerals (005), Color - Matching (019) or Attention to Tasks (023). For one scale, Visual Memory - Objects, the Low-State group surpassed the Middle-State group.

In the overall text comparisons for scales in the K-01 battery, few significant differences were obtained. Exceptions were found for two geometry scales (002 and 003), the Visual Memory scales (008, 017) and Rote Counting (016). In scales measuring performance in geometry and rote counting, the Low-SMSG group surpassed the Low-State group. A possible explanation for the better performance of the Low-SMSG group on these scales is that some of the schools in this group had Head Start programs associated with their schools, while students in the other schools had not participated in Head Start; and skills such as rote counting and familiarity with geometric shapes would probably have been taught in these pre-school programs. The two Visual Memory scales show different text effects in the two socio-economic levels and this fact, together with the rather low values for Cronbach's alpha found for the scales ($\alpha = .43$ for scale 008 and $\alpha = .38$ for scale 017), make the results difficult to interpret.

WPPSI scales. The results for cell comparisons for the WPPSI scales are given in Tables 2.10A and 2.10B. Significant overall socio-economic effects were obtained for all the WPPSI scales and significant differences between socio-economic levels were found in the pairwise comparison for each curriculum. There were no differences for groups assigned to the two texts in either the overall test or in the pairwise comparisons.

Table 2.9A

Cell Means and Standard Deviations
of Beginning-of-Kindergarten Scales
Selected Sample

K-01 Scales	SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
	MN	SD	MN	SD	MN	SD	MN	SD
Geom Shape: Match 001	3.86	0.55	3.86	0.52	3.74	0.69	3.91	0.46
Geom Shape: Name 002	1.76	1.28	1.57	1.04	1.10	1.09	1.47	1.01
Geom Shape: Ident 003	2.56	1.31	2.71	1.19	1.94	1.22	2.68	1.04
Count Buttons 004	3.58	2.59	5.17	2.26	3.32	2.67	5.26	2.19
Write Numerals 005	0.76	1.66	1.37	2.20	0.71	1.66	1.00	1.67
Count Set PC 006	3.16	2.86	4.99	2.74	3.10	2.87	4.81	2.68
Ident Numerals 007	3.42	3.03	5.33	2.93	3.22	2.98	5.60	2.52
Vis Mem Obj 008	3.39	1.27	3.50	1.31	3.26	1.19	3.01	1.21
Vocabulary 010	14.02	2.94	15.78	2.60	13.67	3.43	15.33	2.77
Equiv Sets: Dots 012	2.54	2.18	3.80	1.91	2.54	2.12	3.88	1.91
Ordinal No. 013	3.10	1.51	4.17	1.78	3.09	1.74	3.91	1.98
Order Geom Shapes 014	0.62	0.77	1.08	0.90	0.62	0.82	0.88	0.88
Classify 015	3.71	1.89	4.71	1.98	3.78	2.10	4.82	1.85
Rote Count 016	1.37	1.44	1.86	1.98	1.11	1.13	1.68	1.65
Vis Mem Pict 017	1.12	1.12	1.43	1.05	0.87	0.93	1.25	1.10
Color Match 019	5.72	0.84	5.91	0.47	5.86	0.67	5.86	0.50
Color Name 020	5.38	2.10	6.28	1.51	5.27	2.18	6.30	1.53
Color Ident 021	5.00	1.76	5.56	1.30	4.61	2.01	5.55	1.19
Resp Verb Dir 022	3.56	0.64	3.74	0.48	3.59	0.62	3.81	0.52
Attn to Tasks 023	1.61	0.90	1.70	0.99	1.60	0.86	1.50	0.87
(Sample Sizes)	($243 \leq N \leq 248$)		($194 \leq N \leq 202$)		($273 \leq N \leq 290$)		($136 \leq N \leq 139$)	

Note: Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.9B

Analyses of Variance
Comparing Text and Socio-economic Effects
for Beginning-of-Kindergarten Scales
Selected Sample

K-01 Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Geom Shape: Match 001	3.98*	0.68	4.22*	5.45*	0.61	0.00	7.56*
Geom Shape: Name 002	1.21	22.16*	11.54*	41.96*	0.71	2.85	9.41*
Geom Shape: Ident 003	26.72*	14.05*	11.64*	33.45*	0.05	1.68	34.04*
Count Buttons 004	102.75*	0.23	0.94	1.38	0.10	45.89*	56.88*
Write Numerals 005	12.66*	2.79	1.63	0.10	3.51	12.78*	2.39
Count Set PC 006	81.05*	0.35	0.08	0.06	0.31	47.10*	35.05*
Ident Numerals 007	109.91*	0.03	1.29	0.62	0.68	47.71*	62.27*
Vis Mem Obj 008	0.64	12.65*	4.39*	1.40	12.91*	0.92	3.86*
Vocabulary 010	66.07*	3.61	0.06	1.81	1.85	38.24*	28.70*
Equiv Sets: Dots 012	81.67*	0.10	0.08	0.00	0.15	41.82*	40.08*
Ordinal No. 013	60.19*	1.31	1.04	0.01	1.89	42.21*	20.88*
Order Geom Shapes 014	37.84*	2.88	3.40	0.01	5.06*	34.93*	8.55*
Classify 015	54.52*	0.42	0.03	0.15	0.27	28.45*	26.28*
Rote Count 016	24.27*	4.21*	0.16	3.96*	1.10	11.28*	13.00*
Vis Mem Pict 017	21.99*	8.51*	0.28	7.75*	2.32	9.42*	12.60*
Color Match 019	4.39*	1.09	4.28*	6.35*	0.43	9.48*	0.00
Color Name 020	51.18*	0.11	0.23	0.44	0.01	24.34*	26.86*
Color Ident 021	40.49*	2.82	2.47	6.93*	0.00	12.54*	29.02*
Resp Verb Dir 022	23.38*	1.17	0.25	0.22	1.01	10.26*	13.13*
Attn to Tasks 023	0.00	2.84	2.05	0.04	3.92*	1.10	0.96

$823 \leq N \leq 879$

*$p \leq .05$

Note: Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.10A

Cell Means and Standard Deviations
of WPPSI Scales
Selected Sample

WPPSI Scales		SMSG Low S.E. A1		SMSG Mid. S.E. B1		State Low S.E. C1		State Mid. S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
Vocabulary	M112	8.77	2.60	11.30	2.82	8.99	2.67	10.80	3.14
Similarities	M114	9.52	2.92	10.71	2.66	9.67	2.66	10.97	2.88
Pict Compl	M117	9.04	2.71	10.55	2.63	9.28	2.45	10.56	2.68
Block Design	M120	9.60	2.64	11.05	2.44	9.84	2.82	11.11	2.36
Total	M123	36.92	7.90	43.61	6.76	37.82	7.28	43.54	7.56

$819 \leq N \leq 823$

Note: Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.10B

Analyses of Variance
Comparing Text and Socio-economic Effects
for WPPSI Scales
Selected Sample

WPPSI Scales		F-Values						
		Overall Effects			Pairwise Comparisons			
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Vocabulary	M112	113.41*	0.49	3.12	0.79	2.36	89.95*	34.52*
Similarities	M114	36.92*	1.03	0.07	0.41	0.63	19.68*	17.60*
Pict Compl	M117	53.03*	0.44	0.36	1.13	0.00	36.17*	19.56*
Block Design	M120	48.89*	0.58	0.20	1.02	0.04	32.19*	18.79*
Total	M123	127.72*	0.57	0.78	1.88	0.01	86.71*	47.43*

$819 \leq N \leq 823$

*$p \leq .05$

Note: Five students in Cell A and 30 in Cell D1 were omitted from this analysis.

Summary of initial cell comparisons. For almost all scales of the initial mathematics inventory (K-01) and all the WPPSI scales, the expected pattern of differences between socio-economic levels were found but no differences between texts were found. The exceptions to this general pattern were usually in scales that could be readily affected by some differential teaching and involved cognitively simple tasks such as rote counting or identifying shapes.

Comparisons of Cells on Common Scales at the End of Kindergarten

Analyses of variance. Significant differences were found for all scales on the overall comparison for socio-economic level shown in Tables 2.11A and 2.11B. In the SMSG curriculum, the pairwise comparison of the middle and low groups also showed significant differences for all scales. In the case of the State curriculum, significant differences were found for all scales except Counting Members of a Given Set - Picture Cards (110) and Counting Members of a Given Set - Objects (111) from the K-02 battery and Alphabet (R204) from the Metropolitan Readiness Test.

Overall text differences were found for Counting Members of a Given Set - Picture Cards (110), Equivalent Sets - Dots (119), and Classifying - S2 (130), and four scales of the MRT, Word Meaning (R201), Alphabet (R204), Numbers (R205), and Copying (R206). Significant interactions were found between socio-economic level and text for Classifying - S2, Equivalent Sets - Dots, and Alphabet. As can be seen by looking at the pairwise comparisons for text within the two socio-economic levels, significant differences were found only in the low groups. The Low-State group had higher average score than the Low-SMSG group on all scales.

Analyses of covariance. In Tables 2.12A and 2.12B the results of analyses of covariance for the common K-02 scales and the MRT scales are given. (Correlation matrices by cell are given in the Appendix in Table A2.5 and the regression weights by cell in Table A2.6.) The WPPSI scales were also included in these analyses since they were given in the second part of kindergarten to provide a comparison for the results obtained with the other two tests. Using covariance analyses to take account of skills acquired prior to kindergarten, overall socio-economic effects, which had appeared in the analyses of variance shown in Table 2.11B, were eliminated for most of the K-02 scales and for several of the MRT scales but left the WPPSI results unchanged. There was, however, generally interaction between socio-economic level and text, and different effects were found in the two curricula. The middle socio-economic groups in both text groups had significantly higher adjusted scores for Classifying - S2 (130) and Ordering (147) from the K-02 test; Word Meaning (R201) and Listening (R202) from the MRT; and Vocabulary (M112), Picture Completion (M117), and the Total Score (M123) from the WPPSI. (There was, however, significant heterogeneity of

Table 2.11A

Cell Means and Standard Deviations
of End-of-Kindergarten Common Scales
Selected Sample

Scales		SMSG Low S.E. A1		SMSG Mid. S.E. B1		State Low S.E. C1		State Mid. S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
Math Scales (N = 879)									
Geom Shape: Ident	104	4.26	1.07	4.57	0.79	4.39	0.99	4.65	0.71
Count Set PC	110	5.40	3.07	6.86	2.66	6.39	3.02	6.83	2.68
Count Set: Obj	111	6.78	2.94	7.69	2.53	7.24	2.92	7.45	2.44
Equiv Sets: Obj	118	3.72	2.18	4.83	1.56	4.04	2.07	4.68	1.64
Equiv Sets: Dots	119	4.25	2.02	5.08	1.37	4.71	1.59	5.22	1.23
Classify S-2	130	4.71	1.58	5.80	0.66	5.08	1.22	5.76	0.73
Order Comp	147	4.44	3.60	7.65	2.60	4.50	3.89	7.40	3.00
MRT Scales ($521 \leq N \leq 526$)									
Word Mean	R201	7.53	2.89	10.52	2.44	8.39	2.77	10.89	2.55
Listen	R202	9.63	2.87	11.31	2.21	9.84	2.59	11.87	2.90
Match	R203	7.60	3.74	9.99	2.78	8.30	3.38	10.11	2.69
Alphabet	R204	9.72	4.56	12.31	3.44	12.50	3.65	13.16	3.16
Numbers	R205	10.95	4.24	14.44	3.58	12.22	3.97	15.13	3.84
Copy	R206	4.36	2.55	5.69	2.17	5.08	2.52	5.91	1.96

Note: Means obtained from analysis of variance program.

Standard deviations obtained from heterogeneity of regression program.

Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.11B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-Kindergarten Common Scales
Selected Sample

Scales		F-Values						
		Overall Effects			Pairwise Comparisons			
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales (N = 879)								
Geom Shape: Ident	104	19.49*	2.71	0.17	2.79	0.61	12.76*	7.37*
Count Set PC	110	21.87*	5.59*	6.29*	15.57*	0.01	28.20*	2.17
Count Set: Obj	111	8.45*	0.32	3.24	3.67	0.61	12.09*	0.57
Equiv Sets: Obj	118	41.40*	0.41	3.06	3.74	0.50	36.58*	10.12*
Equiv Sets: Dots	119	33.82*	6.83*	2.00	10.65*	0.58	28.56*	8.92*
Classify S-2	130	114.57*	4.06*	6.36*	13.51*	0.10	95.54*	30.86*
Order Comp	147	163.06*	0.16	0.42	0.04	0.44	98.35*	67.72*
MRT Scales (522 ≤ N ≤ 526)								
Word Mean	R201	123.29*	6.21*	1.00	8.36*	0.88	84.70*	44.97*
Listen	R202	58.63*	2.51	0.51	0.52	2.08	27.93*	30.82*
Match	R203	48.98*	1.85	0.96	3.75	0.06	36.95*	15.90*
Alphabet	R204	21.43*	26.78*	7.64*	43.24*	2.29	31.62*	1.53
Numbers	R205	77.48*	7.28*	0.64	8.40*	1.42	53.70*	28.05*
Copy	R206	24.05*	4.63*	1.34	7.51*	0.39	21.38*	6.15*

*$p \leq .05$

Note: Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.12A

Cell Means Adjusted by Analysis of Covariance
for End-of-Kindergarten Common Scales
Using Beginning-of-Kindergarten Scales as Covariates
Selected Sample

Scales		SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
		ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Math Scales					
Geom Shape: Ident	104	4.33	4.47	4.47	4.55
Count Set PC	110	5.76	6.22	6.83	6.18
Count Set: Obj	111	7.06	7.21	7.63	6.92
Equiv Sets: Obj	118	3.96	4.41	4.35	4.22
Equiv Sets: Dots	119	4.49	4.68	5.00	4.79
Classify S-2	130	4.84	5.57	5.25	5.52
Order Comp	147	4.97	6.70	5.13	6.60
(Sample Sizes)		(246≤N≤248)	(201≤N≤202)	(284≤N≤290)	(136≤N≤139)
WPPSI Scales					
Vocabulary	M112	8.98	10.71	9.45	10.37
Similarities	M114	9.65	10.31	10.07	10.63
Pict Compl	M117	9.27	10.16	9.53	10.12
Block Design	M120	9.94	10.47	10.22	10.53
Total	M123	37.83	41.54	39.50	41.65
(Sample Sizes)		(238≤N≤243)	(189≤N≤91)	(269≤N≤275)	(112≤N≤114)
MRT Scales					
Word Mean	R201	7.85	9.84	8.86	10.27
Listen	R202	9.97	10.57	10.34	11.22
Match	R203	8.11	9.05	8.92	9.20
Alphabet	R204	10.41	10.98	13.31	12.04
Numbers	R205	11.80	13.10	13.21	13.57
Copy	R206	4.71	5.02	5.52	5.37
(Sample Sizes)		(156≤N≤159)	(121≤N≤122)	(165≤N≤169)	(74≤N≤76)

Note: Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.12B

Analyses of Covariance
Comparing Text and Socio-economic Effects
for End-of-Kindergarten Common Scales
Using Beginning-of-Kindergarten Scales as Covariates
Selected Sample

Scales		F-Values								
		Overall Effects			Pairwise Comparisons				Heterogeneity of Regression	
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales ($868 \leq N \leq 879$)										
Geom Shape: Ident	104	2.77	2.93	0.26	3.25	0.58	2.70	0.69	0.69	.718
Count Set PC	110	0.23	7.86*	9.36*	22.54*	0.03	3.28	5.48*	1.16	.315
Count Set: Obj	111	2.13	0.60	5.64*	6.48*	1.03	0.34	6.58*	1.09	.368
Equiv Sets: Obj	118	1.53	0.66	5.73*	6.73*	1.01	7.07*	0.49	2.00	.063
Equiv Sets: Dots	119	0.01	10.09*	3.89	17.38*	0.59	1.82	1.80	2.12*	.026*
Classify S-2	130	39.69*	6.07*	9.12*	19.71*	0.12	48.56*	5.91*	2.96*	.002*
Order Comp	147	52.72*	0.02	0.40	0.41	0.09	35.83*	22.10*	1.67	.069
WPPSI Scales ($819 \leq N \leq 823$)										
Vocabulary	M112	44.93*	0.12	4.76*	4.39*	1.32	47.31*	9.98*	0.92	.506
Similarities	M114	8.49*	3.58	0.06	3.15	1.06	6.09*	3.32	1.12	.342
Pict Compl	M117	14.45*	0.35	0.71	1.43	0.03	13.09*	4.24*	1.30	.234
Block Design	M120	4.91*	0.92	0.37	1.74	0.05	4.80*	1.27	0.55	.879
Total	M123	33.37*	3.53	2.67	8.49*	0.02	32.99*	8.41*	0.86	.615
MRT Scales ($517 \leq N \leq 526$)										
Word Mean	R201	51.17*	10.66*	1.79	14.65*	1.48	43.95*	16.66*	1.43	.171
Listen	R202	10.44*	5.64*	0.43	2.07	3.61	4.31*	7.00*	3.24*	.001*
Match	R203	4.45*	3.29	1.54	6.50*	0.13	6.66*	0.46	0.73	.755
Alphabet	R204	1.27	46.51*	10.16*	68.96*	5.24*	2.01	7.94*	2.22*	.020*
Numbers	R205	7.65*	11.77*	2.93	18.07*	1.17	11.92*	0.67	1.40	.163
Copy	R206	0.16	9.14*	1.43	12.35*	1.29	1.41	0.23	0.78	.673

* $p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

regression[13] for scales 130 and R202.) In addition, in the pairwise comparison within SMSG, the middle group still had higher adjusted scores than the low group for Equivalent Sets - Objects (118); all WPPSI scales; and Matching (R203 and Numbers (R205) from the MRT. In the case of the State curriculum groups, adjusting for the level of performance at the beginning of kindergarten resulted in a reversal of results, with the low group achieving significantly higher adjusted scores than the middle group on Counting Members of a Given Set - Picture Cards (110), - Objects (111), and Alphabet (R204).

In the analyses of covariance, overall text differences were found for most of the same scales for which they had appeared in the analyses of variance discussed previously. The results of text pairwise comparisons shows that, with one exception, significant differences were confined to the low groups; the Low-State group had higher adjusted means than the Low-SMSG group. The K-02 scales for which the Low-State group had higher adjusted scores than the Low-SMSG group were Counting Members of a Given Set (110 and 111), Equivalent Sets (118 and 119), and Classifying S-2 (130); but for two of these, 119 and 130, there was significant heterogeneity of regression. For the MRT scales, the Low-State group had significantly higher adjusted scores on all scales except Listening (R202), but there was significant heterogeneity of regression for one of the scales, Alphabet (R204). In the comparison of the middle socio-economic groups, the State group surpassed the SMSG group on the Alphabet scale. Otherwise (with covariates added), there were no text differences for the middle socio-economic groups just as there had been none in the analysis of variance.

Summary of cell comparisons on common scales at end of kindergarten. In the case of the middle socio-economic groups, the different curricula followed seemed to have no effect on performance at the end of kindergarten. For the low groups, however, the State curriculum seemed to be more effective in promoting the skills measured in the end-of-kindergarten test. All scales of the mathematics test battery, except the geometry and ordering scales, were differentially effected by the curricula in the low socio-economic groups. On most of the scales in the MRT and the WPPSI, the Low-State group also surpassed the Low-SMSG group, even on the MRT scales that are not related to mathematics.

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[13] When there is heterogeneity of regression, the statistical technique of covariance analysis is invalid; however, results of the covariance analyses will be mentioned in this report and should be considered as descriptive statistics. See Chapter 1 of the report for a more complete discussion of the statistics.

Comparisons of Cells on End-of-Kindergarten Subpopulation Scales

In the analyses of variance shown in Tables 2.13A and 2.13B, significant overall socio-economic effects were found for all kindergarten subpopulation scales, as had been the case for the kindergarten common scales. Text differences were obtained only for the Y-population Classifying scales (128Y and 129Y). The common Classifying scale (130) had been one of the few scales which differentiated the text groups in the analyses of variance of the common scales.

As had been the case for the common scales, socio-economic differences disappeared for most of the scales when covariance analysis was used (see Tables 2.14A and 2.14B), with exceptions occurring for the Classifying and Ordering scales. In the S.E. within SMSG comparison, the middle group had significantly higher adjusted scores on Classifying (129Y), Ordering Numbers (120Y), Ordering Sets of Objects (137Z), and Ordering Pictured Sets (139Z). (Correlation matrices and regression weights by cell are given in Tables A2.7 and A2.8 in the Appendix.) For the common scales, Classifying - S2 (130) and Ordering (147), the Middle-State group had also attained higher adjusted scores (see Table 2.12B); but significant heterogeneity of regression had been found for Classifying - S2. The Middle-SMSG group also had higher adjusted scores than the Low-SMSG group on Geometric Shapes - Naming (102Y) and Vocabulary (117X).

All results for subpopulation scales must be considered tentative since the subpopulations tended to differ somewhat from each other. Thus, when factor analyses of common scales were performed in the four subpopulations, a somewhat different pattern had been obtained for the Z-population,[14] and when stepwise regressions were run for the common scales in three of the subpopulations, somewhat different regression equations had been obtained. Also, in a preliminary analysis of the data which had defined cells in a slightly different manner, different results had been obtained for common scales when the analysis had been performed separately in each subpopulation.

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[14] See results of the factor analyses in ELMA Report No. 1, A Longitudinal Study of Mathematical Achievement in the Primary School Years, Description of Design, Sample, and Factor Analyses of Tests.

Table 2.13A

Cell Means and Standard Deviations
of End-of-Kindergarten Subpopulation Scales
Selected Sample

K-02 Scales		SMSG Low S.E. A1		SMSG Mid. S.E. B1		State Low S.E. C1		State Mid. S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
X-Pop Math Scales (221 ≤ N ≤ 222)									
Count Buttons	106X	6.81	2.68	8.10	1.29	7.29	2.47	8.57	0.92
Write Numerals	108X	3.70	2.89	4.85	2.64	4.01	3.28	5.71	2.61
Ident Numerals	113X	7.46	2.64	8.92	2.49	7.87	3.07	9.57	1.01
Vocabulary	117X	13.79	3.26	16.81	1.87	14.14	3.45	16.06	2.91
Y-Pop Math Scales (N = 210)									
Geom Shape: Name	102Y	3.75	1.21	4.55	0.77	4.08	1.05	4.57	0.70
Ordinal Number	120Y	4.72	2.17	6.27	1.89	5.02	1.76	6.03	1.90
Classify S-1	128Y	5.11	2.05	6.43	1.32	6.23	1.68	6.86	1.40
Classify	129Y	11.44	3.82	14.47	1.53	13.31	2.83	14.80	2.03
Z-Pop Math Scales (220 ≤ N ≤ 221)									
Order Sets Obj	137Z	1.19	1.22	2.10	1.13	1.20	1.13	1.89	1.26
Order Sets PC	139Z	1.39	1.29	2.27	1.07	1.32	1.28	2.09	1.07
Conservation	146Z	7.93	3.02	9.12	2.91	7.32	2.63	9.49	3.00

Note: Means obtained from analysis of variance program.

Standard deviations obtained from heterogeneity of regression program.

Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.13B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-Kindergarten Subpopulation Scales
Selected Sample

K-02 Scales		F-Values						
		Overall Effects			Pairwise Comparisons			
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
X-Pop Math Scales								
Count Buttons	106X	17.43*	2.36	0.00	1.63	0.91	9.41*	8.11*
Write Numerals	108X	12.10*	2.05	0.44	0.40	1.74	4.23*	8.06*
Ident Numerals	113X	19.04*	2.15	0.12	0.85	1.30	8.66*	10.39*
Vocabulary	117X	32.86*	0.22	1.65	0.45	1.22	26.31*	9.29*
Y-Pop Math Scales								
Geom Shape: Name	102Y	20.79*	1.47	1.14	3.30	0.01	17.37*	5.60*
Ordinal Numbers	120Y	21.45*	0.01	0.92	0.72	0.30	17.16*	6.19*
Classify S-1	128Y	16.55*	10.49*	2.08	13.92*	1.33	16.66*	3.17
Classify	129Y	32.06*	7.57*	3.70	13.88*	0.28	31.56*	6.42*
Z-Pop Math Scales								
Order Sets Obj	137Z	23.47*	0.39	0.43	0.00	0.67	16.13*	8.26*
Order Sets PC	139Z	24.03*	0.57	0.11	0.11	0.49	14.64*	9.81*
Conservation	146Z	17.80*	0.09	1.54	1.54	0.35	4.76*	13.96*

$210 \leq N \leq 222$

* $p \leq .05$

Note: Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.14A

Cell Means Adjusted by Analysis of Covariance
for End-of-Kindergarten Subpopulation Scales
Using Beginning-of-Kindergarten Scales as Covariates
Selected Sample

K-02 Scales		SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
		ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
X-Pop Math Scales (217 ≤ N ≤ 221)					
Count Buttons	106X	7.35	7.26	7.81	7.90
Write Numerals	108X	3.96	4.38	4.34	5.21
Ident Numerals	113X	7.96	8.17	8.28	8.85
Vocabulary	117X	14.52	15.66	14.96	15.06
Y-Pop Math Scales (206 ≤ N ≤ 209)					
Geom Shape: Name	102Y	3.87	4.38	4.22	4.40
Ordinal Number	120Y	5.02	5.64	5.52	5.62
Classify S-1	128Y	5.40	5.93	6.60	6.38
Classify	129Y	11.91	13.67	13.93	14.02
Z-Pop Math Scales (218 ≤ N ≤ 219)					
Order Sets Obj	137Z	1.27	1.76	1.51	1.55
Order Sets PC	139Z	1.39	2.04	1.61	1.75
Conservation	146Z	7.88	8.46	8.23	8.65
(Sample Sizes)		(57≤N≤63)	(46≤N≤52)	(64≤N≤76)	(34≤N≤35)

Note: Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Table 2.14B

Analyses of Covariance
Comparing Text and Socio-economic Effects
for End-of-Kindergarten Subpopulation Scales
Using Beginning-of-Kindergarten Scales as Covariates
Selected Sample

K-02 Scales	F-Values							Heterogeneity of Regression	
	Overall Effects			Pairwise Comparisons					
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
X-Pop Math Scales									
Count Buttons 106X	0.00	5.00*	0.14	2.33	2.71	0.07	0.06	1.77	.076
Write Numerals 108X	2.65	2.69	0.34	0.68	2.03	0.63	2.43	1.05	.405
Ident Numerals 113X	1.65	2.98	0.40	0.74	2.28	0.25	1.79	1.49	.513
Vocabulary 117X	2.88	0.07	2.52	1.19	1.36	5.56*	0.04	0.95	.501
Y-Pop Math Scales									
Geom Shape: Name 102Y	5.77*	1.93	1.47	4.29*	0.01	7.27*	0.82	0.38	.889
Ordinal Number 120Y	2.27	1.15	1.37	3.14	0.00	3.92*	0.09	1.48	.517
Classify S-1 128Y	0.49	16.51*	3.45	22.22*	2.03	3.39	0.50	1.45	.171
Classify 129Y	6.27*	12.32*	6.16*	22.76*	0.44	13.45*	0.03	1.93	.050*
Z-Pop Math Scales									
Order Sets Obj 137Z	3.36	0.01	2.75	2.04	1.01	6.60*	0.03	0.57	.867
Order Sets PC 139Z	6.94*	0.06	3.06	1.46	1.65	10.84*	0.41	0.93	.474
Conservation 146Z	1.97	0.59	0.06	0.65	0.12	1.59	0.63	1.63	.086

$206 \leq N \leq 221$

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

Five students in Cell A1 and 30 in Cell D1 were omitted from this analysis.

Chapter 3

END-OF-FIRST-GRADE SCALES: PREDICTIONS FROM END-OF-KINDERGARTEN SCALES AND COMPARISONS BY TEXT AND SOCIO-ECONOMIC LEVEL

At the end of first grade, mathematics scales were constructed to measure areas that were to be studied for the remaining years of the study. The test battery was developed to measure the child's knowledge of place value, number comparison, number line, application (i.e., word problems), comprehension of concepts underlying arithmetic, rationals, computation, and geometry. The first grade geometry scales measured ability to identify triangles and rectangles and also the ability to recognize that a figure with curved sides was not a rectangle (the latter scale was called Curved Figures, 323). All the scales covering the topics mentioned were administered to small groups except one of the two comprehension scales which was administered individually. (The test battery also included several individually-administered scales from the K-02 battery, but they will be omitted here because students obtained scores very close to the maximum possible value.)

In addition to the mathematics scales given at the end of first grade, the analyses to be discussed in this chapter will also include scales measuring reading, which came from the Stanford Achievement Test, Primary I, Form W (SAT), and general ability as measured by the Raven Progressive Matrices Test and the Kuhlmann-Anderson Test (K-A). The SAT was given at the end of first grade, the Raven Test was administered several months earlier, and the K-A Test was given at the beginning of the second grade.

Stepwise regressions were run for the end-of-first-grade scales using as predictors common scales from the end-of-kindergarten test battery (K-02), and scales from the WPPSI and the Metropolitan Readiness Test (MRT). Then an investigation of the effect of curriculum and socio-economic status on mathematics achievement was done by performing analyses of variance and covariance for the groups previously defined for the two curricula and the two socio-economic levels. Again, the best predictors from the stepwise regressions were used as covariates in the analyses of covariance. Since only students who had scores on the kindergarten scales could be used for the analyses of covariance, the analyses of variance were also confined to students present in kindergarten.

Results of Stepwise Regressions

The means and standard deviations for all common scales used in the stepwise regressions are given in Table 3.1. (The means and standard deviations for the covariates in Table 3.1 are those obtained when regressions were run with mathematics scales as dependent variables, and are quite close to the values obtained in the regressions with the other dependent variables.) The correlation matrices obtained in the stepwise regression analyses for each set of variables are given in the Appendix in Table A3.1. Table 3.2 shows multiple correlations obtained by adding successive variables to the prediction equation. In Table 3.2, the multiple correlations were recorded until they failed to increase by at least .01 when another variable was added. (Rationals, 310, has been omitted from Table 3.2 because the multiple R was very low, and Cronbach's alpha for the scale had the low value of $\alpha = .09$.)

Inspection of Table 3.2 shows that for most of the first grade tests, except the geometry scales, the kindergarten scales provide fairly high multiple correlations. The first predictor to enter the equation for most of the scales, except those from the Raven test, was Numbers (R205) from the MRT. Block Design (M120) from the WPPSI was the first variable to enter as a predictor for the Raven scales and was included among the leading predictors for most of the other scales.

Regression equations, both with raw coefficients and standardized coefficients, are given in Table 3.3. The regression equations shown in Table 3.3 are the ones obtained for the same cutoff point as was used in Table 3.2. Inspection of the standardized regression coefficients in the equations for predicting mathematics scales (part A of Table 3.3) shows that Numbers (R205) from the MRT has an especially large weight compared to the other predictor variables, for Place Value (306), Application (309), Computation - Addition (311), Computation - Subtraction (312), Computation - Multiplication (313), and Comprehension - Group (328). Numbers also entered into the prediction equation for the other scales (with the exception of two geometry scales that have very low multiple correlations), but for these the standardized regression weight was about the same magnitude as those for the other variables in the equation. Although Numbers was also the first variable to enter the prediction equation for the SAT scales (part C of Table 3.3), its standardized weight in the regression equation was almost the same as that for Alphabet (R204). For IQ: Kuhlmann-Anderson (M324) (see part D of Table 3.3), Numbers also entered first, but the standardized regression weight was close to those obtained for Block Design (M120) from the WPPSI and Copying (R206) from the MRT.

Table 3.1

Means and Standard Deviations
of End-of-Kindergarten Scales and End-of-First-Grade Scales
Total Sample

Covariate Scales		MN	SD
K-02 Scales (N = 611)			
Geom Shape: Ident	104	4.52	0.87
Count Set: PC	110	6.65	2.84
Count Set: Obj	111	7.52	2.61
Equiv Sets: Obj	118	4.40	1.91
Equiv Sets: Dots	119	4.87	1.49
Classify S-2	130	5.37	1.16
Order Comp	147	5.83	3.71
WPPSI Scales (N = 611)			
Vocabulary	M112	9.82	2.87
Similarities	M114	10.24	2.84
Pict Compl	M117	9.86	2.75
Block Design	M120	10.57	2.68
MRT Scales (N = 611)			
Word Mean	R201	9.31	3.03
Listen	R202	10.62	2.67
Match	R203	9.00	3.40
Alphabet	R204	12.11	3.87
Numbers	R205	13.04	4.14
Copy	R206	5.49	2.50

(continued)

Note: Statistics obtained from stepwise regressions using the end-of-kindergarten scales as covariates. The end-of-kindergarten statistics are from regressions of the end-of-first-grade math scales.

Table 3.1

(second page)

Dependent Variable Scales		MN	SD
Math Scales (N = 611)			
Place Value	306	4.45	2.08
No. Compare	307	5.21	1.51
No. Line	308	3.25	1.26
Application	309	4.20	1.65
Rationals	310	2.84	1.34
Compute-Add	311	6.98	2.30
Compute-Subtract	312	4.90	3.11
Compute-Mult	313	0.36	0.70
Ident Triangle	321	4.76	1.79
Ident Rectang	322	2.67	1.42
Curved Figure	323	3.42	1.48
Comprehend-Gp	328	1.78	1.08
Comprehend-Ind	329	2.32	1.26
Raven Scales (N = 629)			
Raven Set A	M201	7.51	1.46
Raven Set Ab	M202	4.97	2.13
Raven Set B	M203	4.00	1.76
Raven-Total	M204	16.48	4.34
SAT Scales (N = 669)			
SAT Word #Rt	A201	20.54	7.81
SAT Paragraph #Rt	A205	20.12	9.80
SAT Read-Tot #Rt	A209	40.69	17.04
Kuhlmann-Anderson (N = 533)			
IQ: Kuhl-Anderson	M324	109.19	14.51

Table 3.2

Order of Entry and Multiple Correlations
between End-of-First-Grade Scales and End-of-Kindergarten Scales
Total Sample

Covariate Scales	Dependent Variables: Mathematics Scales						
	306	307	308	309	311	312	313
K-02 Scales							
Geom Shape: Ident 104							
Count Set: PC 110					4;.64		
Count Set: Obj 111							
Equiv Sets: Obj 118							
Equiv Sets: Dots 119					2;.61		
Classify S-2 130		2;.58					
Order Comp 147		4;.61		3;.58			
WPPSI Scales							
Vocabulary M112							
Similarities M114	3;.62			2;.56		4;.61	
Pict Compl M117				4;.59			
Block Design M120	2;.60		3;.54		3;.63		2;.42
MRT Scales							
Word Mean R201							
Listen R202			4;.55				
Match R203		3;.60	1;.46				
Alphabet R204						3;.60	
Numbers R205	1;.57	1;.51	2;.52	1;.53	1;.58	1;.57	1;.40
Copy R206						2;.59	
Maximum Multiple R	.63	.63	.57	.60	.66	.64	.44

(continued)

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the multiple R when the F-value to enter is less than 2.0.

Table 3.2

(second page)

Covariate Scales	Dependent Variables: Mathematics Scales				
	321	322	323	328	329
K-02 Scales					
Geom Shape: Ident 104	3;.23	2;.32	1;.14		
Count Set: PC 110				2;.47	3;.48
Count Set: Obj 111					
Equiv Sets: Obj 118					
Equiv Sets: Dots 119					
Classify S-2 130					
Order Comp 147				3;.48	
WPPSI Scales					
Vocabulary M112	5;.26				
Similarities M114			2;.16		
Pict Compl M117					
Block Design M120		3;.33			2;.45
MRT Scales					
Word Mean R201	2;.19				
Listen R202					
Match R203			3;.17		
Alphabet R204	4;.24		4;.19		
Numbers R205	1;.13	1;.27		1;.46	1;.40
Copy R206					
Maximum Multiple R	.29	.38	.24	.50	.53

(continued)

Table 3.2
(third page)

Covariate Scales	Dependent Variables							
	Raven Scales				SAT Scales			Kuhlmann-Anderson
	M201	M202	M203	M204	A201	A205	A209	M324
K-02 Scales								
Geom Shape: Ident 104								
Count Set: PC 110								
Count Set: Obj 111								
Equiv Sets: Obj 118								
Equiv Sets: Dots 119								
Classify S-2 130								
Order Comp 147	2;.46	3;.56		3;.63				
WPPSI Scales								
Vocabulary M112			3;.51	5;.66				4;.69
Similarities M114								
Pict Compl M117								
Block Design M120	1;.39	1;.45	1;.41	1;.52	3;.65	3;.62	3;.66	2;.65
MRT Scales								
Word Mean R201		2;.53	2;.49	2;.60				
Listen R202								
Match R203	3;.47	4;.57						
Alphabet R204					2;.64	2;.61	2;.64	
Numbers R205					1;.58	1;.56	1;.59	1;.56
Copy R206	4;.48		4;.54	4;.65				3;.68
Maximum Multiple R	.50	.59	.55	.67	.67	.64	.68	.72

Table 3.3

Regression Equations for Prediction of
End-of-First-Grade Scales from End-of-Kindergarten Scales
Total Sample

A. Mathematics Scales

DEPENDENT VARIABLE 306 PLACE VALUE
STEP NUMBER 3

MULTIPLE R 0.6177
STD. ERROR OF EST. 1.6380

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -1.09998)				
M114 SIML:WPSI SCA	0.1172	0.1602	0.02494	22.1009
M120 BLKD:WPSI SCA	0.1488	0.1918	0.02834	27.5796
R205 NUMBERS:MRT	0.2133	0.4246	0.01897	126.4843

DEPENDENT VARIABLE 307 NUMBER CMPARSN
STEP NUMBER 4

MULTIPLE R 0.6149
STD. ERROR OF EST. 1.1931

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 1.38961)				
130 CLASFY(OVRLAP)	0.3028	0.2319	0.04756	40.5160
147 ORDRG:COMPOS	0.0636	0.1565	0.01613	15.5243
R203 MATCHING:MRT	0.0868	0.1957	0.01777	23.8352
R205 NUMBERS:MRT	0.0800	0.2196	0.01566	26.1210

DEPENDENT VARIABLE 308 NUMBER LINE
STEP NUMBER 4

MULTIPLE R 0.5499
STD. ERROR OF EST. 1.0584

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 0.30139)				
M120 BLKD:WPSI SCA	0.0749	0.1589	0.01857	16.2812
R202 LISTENING:MRT	0.0640	0.1354	0.01964	10.6220
R203 MATCHING:MRT	0.0896	0.2411	0.01601	31.2825
R205 NUMBERS:MRT	0.0511	0.1674	0.01429	12.7889

(continued)

Table 3.3
(second page)

A. Mathematics Scales (continued)

DEPENDENT VARIABLE 309 APPLICATION

STEP NUMBER 4

MULTIPLE R 0.5911
STD. ERROR OF EST. 1.3344

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 0.27003)				
147 ORDRG:COMPOS	0.0677	0.1523	0.01754	14.8795
M114 SIML:WPSI SCA	0.0949	0.1633	0.02040	21.6307
M117 P.CM:WPSI SCA	0.0780	0.1302	0.02164	12.9811
R205 NUMBERS:MRT	0.1379	0.3458	0.01625	71.9792

DEPENDENT VARIABLE 311 COMPUTE:ADD

STEP NUMBER 4

MULTIPLE R 0.6404
STD. ERROR OF EST. 1.8381

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 0.68265)				
110 COUNT MEMS:PC	0.1137	0.1354	0.03121	13.2836
119 EQIV SETS:DOTS	0.2487	0.1554	0.05863	17.9973
M120 BLKD:WPSI SCA	0.1440	0.1617	0.03238	19.7850
R205 NUMBERS:MRT	0.2150	0.3728	0.02241	92.0243

DEPENDENT VARIABLE 312 COMPUTE:SUBT

STEP NUMBER 4

MULTIPLE R 0.6114
STD. ERROR OF EST. 2.4668

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -2.50628)				
M114 SIML:WPSI SCA	0.1293	0.1181	0.03755	11.8550
R204 ALPHABET:MRT	0.1187	0.1478	0.03169	14.0260
R205 NUMBERS:MRT	0.2722	0.3623	0.03227	71.1704
R206 COPYING:MRT	0.1996	0.1607	0.04652	18.4057

(continued)

Table 3.3
(third page)

A. Mathematics Scales (continued)

DEPENDENT VARIABLE 313 COMPUTE:MULT

STEP NUMBER 2

MULTIPLE R 0.4163
STD. ERROR OF EST. 0.6331

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -0.72705)				
M120 BLKD:WPSI SCA	0.0314	0.1211	0.01091	8.2922
R205 NUMBERS:MRT	0.0579	0.3444	0.00707	67.1255

DEPENDENT VARIABLE 321 IDFY TRIANGS

STEP NUMBER 5

MULTIPLE R 0.2573
STD. ERROR OF EST. 1.7360

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 3.13656)				
104 GEO SHAP:IDFY	0.3123	0.1514	0.08431	13.7252
M112 VOCB:WPSI SCA	0.0501	0.0949	0.02863	4.2624
R201 WORD MEAN:MRT	-0.1190	-0.2012	0.02993	15.7995
R204 ALPHABET:MRT	-0.0521	-0.1128	0.02258	5.3323
R205 NUMBERS:MRT	0.1053	0.2435	0.02277	21.3972

DEPENDENT VARIABLE 322 IDFY RECTS

STEP NUMBER 3

MULTIPLE R 0.3349
STD. ERROR OF EST. 1.3410

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -0.03325)				
104 GEO SHAP:IDFY	0.2724	0.1664	0.06376	18.2506
M120 BLKD:WPSI SCA	0.0584	0.1102	0.02326	6.3072
R205 NUMBERS:MRT	0.0654	0.1906	0.01502	18.9961

(continued)

Table 3.3
(fourth page)

A. Mathematics Scales (continued

DEPENDENT VARIABLE 323 CURVD FIGS

STEP NUMBER 6

MULTIPLE R 0.2051
STD. ERROR OF EST. 1.4517

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 4.51707)				
104 GEO SHAP:IDFY	-0.2919	-0.1715	0.07086	16.9718
118 EQIV SETS:OBJS	0.0641	0.0831	0.04109	2.4368
119 EQIV SETS:DOTS	-0.1031	-0.1041	0.05270	3.8303
M114 SIML:WPSI SCA	0.0379	0.0730	0.02180	3.0290
R203 MATCHING:MRT	-0.0429	-0.0986	0.02068	4.2866
R204 ALPHABET:MRT	0.0362	0.0948	0.01792	4.0763

DEPENDENT VARIABLE 328 CMPREHEN:GROUP

STEP NUMBER 3

MULTIPLE R 0.4766
STD. ERROR OF EST. 0.9485

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 0.14188)				
110 COUNT MEMS:PC	0.0400	0.1055	0.01536	6.7771
147 ORDRG:COMPOS	0.0306	0.1055	0.01231	6.1792
R205 NUMBERS:MRT	0.0916	0.3521	0.01166	61.7583

DEPENDENT VARIABLE 329 CMPREHEN:INDIV

STEP NUMBER 3

MULTIPLE R 0.4827
STD. ERROR OF EST. 1.1095

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -0.14471)				
110 COUNT MEMS:PC	0.0873	0.1962	0.01794	23.6726
M120 BLKD:WPSI SCA	0.0997	0.2115	0.01928	26.7489
R205 NUMBERS:MRT	0.0635	0.2080	0.01328	22.8596

(continued)

Table 3.3
(fifth page)

B. Raven Test

DEPENDENT VARIABLE M201 SET A:RAVEN
STEP NUMBER 4

MULTIPLE R 0.4771
STD. ERROR OF EST. 1.2904

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 5.07852)				
147 ORDRG:COMPOS	0.0637	0.1625	0.01668	14.5847
M120 BLKD:WPSI SCA	0.1141	0.2084	0.02326	24.0469
R203 MATCHING:MRT	0.0538	0.1264	0.01791	9.0160
R206 COPYING:MRT	0.0689	0.1219	0.02498	7.6167

DEPENDENT VARIABLE M202 SET AB:RAVEN
STEP NUMBER 4

MULTIPLE R 0.5708
STD. ERROR OF EST. 1.7515

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 0.21750)				
147 ORDRG:COMPOS	0.0913	0.1603	0.02278	16.0602
M120 BLKD:WPSI SCA	0.1965	0.2471	0.03064	41.1423
R201 WORD MEAN:MRT	0.1454	0.2059	0.02726	28.4597
R203 MATCHING:MRT	0.0896	0.1449	0.02401	13.9211

DEPENDENT VARIABLE M203 SET B:RAVEN
STEP NUMBER 4

MULTIPLE R 0.5362
STD. ERROR OF EST. 1.4917

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -0.01688)				
M112 VOCB:WPSI SCA	0.1119	0.1880	0.02411	21.5557
M120 BLKD:WPSI SCA	0.1299	0.1971	0.02645	24.1095
R201 WORD MEAN:MRT	0.0955	0.1632	0.02468	14.9656
R206 COPYING:MRT	0.1208	0.1774	0.02725	19.6332

(continued)

Table 3.3
(sixth page)

B. Raven Test (continued)

DEPENDENT VARIABLE M204 TOTAL:RAVEN
STEP NUMBER 5

MULTIPLE R 0.6575
STD. ERROR OF EST. 3.2859

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 5.14962)				
147 ORDRG:COMPOS	0.1774	0.1525	0.04367	16.5007
M112 VOCB:WPSI SCA	0.2046	0.1393	0.05389	14.4105
M120 BLKD:WPSI SCA	0.4034	0.2514	0.05964	46.8920
R201 WORD MEAN:MRT	0.2537	0.1759	0.05517	21.1507
R206 COPYING:MRT	0.3000	0.1787	0.06209	23.3391

(continued)

Table 3.3
(seventh page)

C. Stanford Achievement Test

DEPENDENT VARIABLE A201 #RT:SAT WORD
STEP NUMBER 3

MULTIPLE R 0.6533
STD. ERROR OF EST. 5.9869

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -0.07425)				
M120 BLKD:WPSI SCA	0.5177	0.1743	0.09940	27.1279
R204 ALPHABET:MRT	0.6265	0.3144	0.07223	75.2429
R205 NUMBERS:MRT	0.5875	0.3110	0.07394	63.1201

DEPENDENT VARIABLE A205 #RT:SAT PGPH
STEP NUMBER 3

MULTIPLE R 0.6222
STD. ERROR OF EST. 7.6915

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -4.12602)				
M120 BLKD:WPSI SCA	0.5846	0.1584	0.12770	20.9592
R204 ALPHABET:MRT	0.7051	0.2848	0.09279	57.7465
R205 NUMBERS:MRT	0.7404	0.3155	0.09500	60.7498

DEPENDENT VARIABLE A209 #RT:SAT TOTAL
STEP NUMBER 3

MULTIPLE R 0.6600
STD. ERROR OF EST. 12.8268

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
(CONSTANT -4.13696)				
M120 BLKD:WPSI SCA	1.0997	0.1715	0.21296	26.6640
R204 ALPHABET:MRT	1.3317	0.3095	0.15475	74.0579
R205 NUMBERS:MRT	1.3269	0.3253	0.15842	70.1506

(continued)

Table 3.3
(eighth page)

D. Kuhlmann-Anderson Test

DEPENDENT VARIABLE M324 IQ:KUHL-ANDER
STEP NUMBER 4

MULTIPLE R 0.6917
STD. ERROR OF EST. 10.5210

VARIABLES IN EQUATION

VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
(CONSTANT 65.82167)				
M112 VOCB:WPSI SCA	0.6902	0.1391	0.17409	15.7177
M120 BLKD:WPSI SCA	1.3884	0.2533	0.20437	46.1495
R205 NUMBERS:MRT	1.0351	0.2895	0.13777	56.4517
R206 COPYING:MRT	1.4387	0.2442	0.21876	43.2531

Since Numbers (R205) had items covering a variety of areas in mathematics as well as some general ability items, it was decided to eliminate this scale to obtain a better picture of the factors involved in predicting first grade scores. The multiple correlations obtained for most of the mathematics scales, with all of the previous predictors used except Numbers, are given in Table A3.2 and regression coefficients are given in Table A3.3.

The multiple correlation values reached without the Numbers scale, shown in Table A3.2, were essentially the same as those shown in Table 3.2 (the same cutoff for predictors was used in both cases). The scale Matching (R203) from the MRT was usually the first predictor to enter the equation. The standardized regression coefficient of Matching, shown in Table A3.3, however, was of the same order of magnitude as the other coefficients in each equation rather than being larger, as had occurred in the case of Numbers (shown in Table 3.3).

Text and Socio-economic Comparisons

Analyses of Variance for End-of-First-Grade Scales

To make the results for the analyses of variance comparable to those obtained for the analyses of covariance, only students who were present at the end of kindergarten are included (i.e., the new students added at the end of first grade are excluded here). Tables 3.4A and 3.4B give the results for the analyses of variance, with the first table showing means and standard deviations for each cell and the second table showing F-values that were obtained.

Significant, overall socio-economic effects were found for all scales except two geometry scales, Identifying Triangles (321) and Curved Figures (323). In the case of socio-economic comparisons done for each curriculum separately, significant differences were obtained for all scales except the geometry scales in some comparisons.

Significant, overall text effects were found for Number Line (308), the three computation scales, Addition (311), Subtraction (312), and Multiplication (313), and the two geometry scales, Identifying Triangles (321) and Identifying Rectangles (322). The SMSG groups had higher scores both in the low and middle socio-economic comparisons for Number Line and Identifying Rectangles. For Identifying Triangles, however, the Low-State group had a higher score than the Low-SMSG group; while there was no significant difference between curricula for the middle socio-economic groups on this scale. For two of the computation scales, Addition (311) and subtraction (312), the State group had significantly higher scores in the low socio-economic group comparison; and, although differences were not significant, the Middle-State group also had higher average scores

Table 3.4A

Cell Means and Standard Deviations
of End-of-First-Grade Scales
Selected Sample Drawn from Original Students

Scales		SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
Math Scales (516 ≤ N ≤ 570)									
Place Value	306	3.84	1.97	5.34	1.92	3.61	1.87	5.34	1.80
No. Compare	307	4.65	1.63	5.74	1.15	4.62	1.48	5.72	1.39
No. Line	308	2.98	1.27	3.88	1.02	2.44	1.20	3.55	1.01
Application	309	3.48	1.47	4.64	1.50	3.61	1.50	4.80	1.70
Compute-Add	311	5.71	2.70	7.62	2.60	6.41	2.21	8.01	1.49
Compute-Subtract	312	3.14	3.05	5.76	2.75	4.04	3.04	6.38	2.36
Compute-Mult	313	0.12	0.44	0.74	0.87	0.11	0.43	0.44	0.75
Ident Triangle	321	5.32	1.50	4.86	1.86	4.41	1.85	4.64	1.72
Ident Rectang	322	2.82	1.33	2.98	1.19	2.14	1.56	2.53	1.38
Curved Figure	323	3.24	1.40	3.58	1.48	3.32	1.53	3.40	1.49
Comprehend-Gp	328	1.60	0.99	2.15	1.13	1.37	0.98	2.05	1.12
Comprehend-Ind	329	1.49	1.18	2.88	1.05	2.04	1.22	2.38	1.16
Raven Scales (515 ≤ N ≤ 537)									
Raven Set A	M201	7.32	1.24	7.91	1.43	6.96	1.35	8.03	1.46
Raven Set Ab	M202	4.21	1.74	5.85	1.98	4.18	1.90	5.71	2.23
Raven Set B	M203	3.28	1.33	4.57	1.59	3.49	1.65	4.53	1.81
Raven-Total	M204	4.63	3.22	5.69	3.76	5.08	3.80	6.44	4.60
SAT Scale (N = 545)									
SAT Read-Tot # Rt	A209	34.36	15.05	43.40	16.62	34.83	15.99	44.02	16.99
Kuhlmann-Anderson (N = 408)									
IQ: Kuhl-Ander	M324	107.80	14.45	111.66	13.23	104.36	13.01	113.28	12.77

Note: Means obtained from analysis of variance program.
Standard deviations obtained from heterogeneity of regression program.

Table 3.4B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-First-Grade Scales
Selected Sample Drawn from Original Students

Scales		F-Values						
		Overall Effects			Pairwise Comparisons			
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales ($516 \leq N \leq 570$)								
Place Value	306	95.29*	0.50	0.45	1.25	0.00	46.29*	49.14*
No. Compare	307	72.00*	0.02	0.00	0.02	0.01	40.16*	32.64*
No. Line	308	92.81*	17.37*	1.05	17.64*	4.00*	41.27*	51.54*
Application	309	74.83*	1.11	0.02	0.55	0.57	40.48*	34.85*
Compute-Add	311	69.84*	6.69*	0.51	7.12*	1.42	45.76*	26.54*
Compute-Subtract	312	91.38*	8.57*	0.29	7.88*	2.30	56.77*	36.92*
Compute-Mult	313	77.51*	8.71*	7.26*	0.04	12.88*	73.57*	16.95*
Ident Triangle	321	0.57	13.97*	5.13*	23.68*	0.88	5.12*	1.02
Ident Rectang	322	5.03*	20.96*	0.96	20.31*	5.22*	0.89	4.69*
Curved Figure	323	2.63	0.17	1.11	0.27	0.87	4.02*	0.14
Comprehend-Gp	328	45.15*	3.31	0.46	4.06	0.53	20.38*	24.77*
Comprehend-Ind	329	71.27*	0.05	25.94*	18.49*	9.59*	101.60*	5.11*
Raven Scales ($515 \leq N \leq 537$)								
Raven Set A	M201	44.20*	0.94	3.68	5.91*	0.35	13.60*	31.17*
Raven Set Ab	M202	79.17*	0.23	0.11	0.02	0.26	51.75*	31.18*
Raven Set B	M203	65.73*	0.33	0.79	1.52	0.04	49.17*	22.13*
Raven-Total	M204	30.52*	7.65*	0.47	2.81	4.84*	12.98*	17.57*
SAT Scale ($N = 545$)								
SAT Read-Tot # Rt	A209	41.21*	0.15	0.00	0.07	0.08	22.64*	18.96*
Kuhlmann-Anderson ($N = 457$)								
IQ: Kuhl-Ander	M324	23.86*	0.49	3.73	4.31*	0.64	4.97*	20.69*

*$p \leq .05$

than the middle-SMSG group. For the computation scale Multiplication (313), the SMSG curriculum group had significantly higher scores in the middle socio-economic group comparison; while no differences on this scale were found in the low socio-economic group comparison. (Multiplication is covered in first grade only in the SMSG curriculum and not in the State curriculum.) For the scale Comprehension - Individual (329), there were no overall text effects, and text effects which were significant in the separate socio-economic groups were in opposite directions and not interpretable. For the scale Comprehension - Group (328), which had a low value for Cronbach's alpha ($\alpha = .33$), the one significant, but low, F-value that occurred in the pairwise comparison of text effect is also not readily interpretable.

For the SAT and K-A scales, significant socio-economic effects were found. For the SAT there were no text effects. Although there were also no significant, overall text effects for the K-A scales, there was a difference in the low groups in favor of the Low-SMSG group.

Analyses of Covariance for End-of-First-Grade Scales

The results for the analyses of covariance for the end-of-first-grade scales are given in Tables 3.5A and 3.5B, with correlation matrices and regression weights by cell in Tables A3.4 and A3.5, respectively. Significant socio-economic effects for all mathematics scales, except geometry, were still obtained after statistical adjustment was made for end-of-kindergarten performance, but no significant differences were found for SAT Reading Total (A209) or IQ: K-A (M324). (For the latter two scales there was, however, significant heterogeneity of regression.) Inspection of the results in Table 3.5B for the two curricula groups separately shows that the middle group still surpassed the low group in the SMSG curriculum, but in the State curriculum there were no longer significant differences in some of the scales that had distinguished the socio-economic groups previously in the analyses of variance shown in Table 3.4B. The scales which no longer showed significant socio-economic effects in the State group in the covariance analyses were: Number Comparison - Order (307), Application (309), Computation - Addition (311), and Comprehension - Individual (329). For Number Comparison - Order there was, however, significant heterogeneity of regression.

The text effects that had been found in the analyses of variance remained unchanged in most cases when covariates were included in the analyses. Thus, the SMSG curriculum still resulted in superior performance on Number Line (308) and Identifying Rectangles (322) at both socio-economic levels, and on Computation - Multiplication (313) in the middle group. The State curriculum resulted in slightly better adjusted scores on Computation - Addition (311) in the low

Table 3.5A

Cell Means Adjusted by Analysis of Covariance
for End-of-First-Grade Scales
Using End-of-Kindergarten Scales as Covariates
Selected Sample

Scales		SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
		ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Math Scales					
Place Value	306	4.41	4.95	4.02	4.74
No. Compare	307	5.02	5.41	4.96	5.24
No. Line	308	3.28	3.65	2.69	3.19
Application	309	3.91	4.40	3.99	4.23
Compute-Add	311	6.44	7.31	6.91	7.41
Compute-Subtract	312	4.19	5.55	4.56	5.31
Compute-Mult	313	0.24	0.70	0.17	0.33
Ident Triangle	321	5.41	4.67	4.54	4.57
Ident Rectang	322	3.12	2.80	2.24	2.27
Curved Figure	323	3.16	3.69	3.29	3.36
Comprehend-Gp	328	1.84	1.97	1.44	1.75
Comprehend-Ind	329	1.76	2.83	2.23	2.19
(Sample Sizes)		(138≤N≤143)	(116≤N≤120)	(157≤N≤164)	(76≤N≤80)
Raven Scales					
Raven Set A	M201	7.53	7.64	7.21	7.68
Raven Set Ab	M202	4.65	5.27	4.55	5.29
Raven Set B	M203	3.67	4.18	3.79	4.14
Raven-Total	M204	15.89	17.02	15.59	17.04
(Sample Sizes)		(132≤N≤134)	((N = 115)	((153≤N≤154)	(62≤N≤63)
SAT Scale					
SAT Read-Tot # Rt	A209	40.04	41.76	36.13	38.59
(Sample Sizes)		(N = 140)	(N = 119)	(N = 164)	(N = 80)
Kuhlmann-Anderson					
IQ: Kuhl-Ander	M324	112.22	108.49	106.28	108.24
(Sample Sizes)		(N = 112)	(N = 102)	(N = 127)	(N = 67)

Table 3.5B

Analyses of Covariance Comparing Text and Socio-economic Effects for End-of-First-Grade Scales Using Kindergarten Scales as Covariates
Selected Sample

Scales		F-Values							Heterogeneity of Regression	
		Overall Effects			Pairwise Comparisons					
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales ($489 \leq N \leq 504$)										
Place Value	306	15.89*	4.29*	0.38	4.76*	0.86	7.02*	10.16*	1.02	.422
No. Compare	307	6.55*	0.92	0.19	0.18	0.80	5.24	2.46	2.64*	.002*
No. Line	308	18.02*	31.13*	0.45	25.31*	9.85*	7.86*	11.66*	1.08	.373
Application	309	7.46*	0.14	1.02	0.26	0.78	8.07*	1.71	0.89	.559
Compute-Add	311	13.84*	2.79	1.15	4.88*	0.15	12.88*	3.65	1.58	.093
Compute-Subtract	312	19.26*	0.09	1.80	1.67	0.45	18.88*	4.78*	1.68	.068
Compute-Mult	313	28.88*	16.63*	7.64*	1.16	19.09*	36.69*	3.87*	2.30*	.034*
Ident Triangle	321	3.82	8.83*	5.72*	18.35*	0.16	10.29*	0.01	0.83	.650
Ident Rectang	322	1.21	32.17*	2.04	33.02*	7.36*	3.50	0.03	0.63	.774
Curved Figure	323	4.37*	0.52	2.86	0.58	2.39	7.97*	0.11	1.56	.100
Comprehend-Gp	328	5.16*	12.33*	1.08	13.28*	2.55	1.05	5.28*	0.76	.656
Comprehend-Ind	329	24.09*	0.66	32.21*	15.10*	17.15*	60.21*	0.08	1.71	.084
Raven Scales ($463 \leq N \leq 466$)										
Raven Set A	M201	4.73*	1.37	2.12	4.78*	0.03	0.43	5.85*	1.04	.406
Raven Set Ab	M202	12.77*	0.05	0.15	0.26	0.01	6.74*	7.63*	1.12	.339
Raven Set B	M203	7.19*	0.08	0.35	0.54	0.03	6.72*	2.31	0.74	.713
Raven-Total	M204	13.21*	0.27	0.29	0.69	0.00	6.62*	8.46*	1.53	.092
SAT Scale ($N = 503$)										
SAT Read-Tot # Rt	A209	3.04	9.62*	0.11	7.42*	3.27	1.20	2.06	2.07*	.031*
Kuhlmann-Anderson ($N = 408$)										
IQ: Kuhl-Ander	M324	0.57	8.13*	7.12*	18.81*	0.02	5.96*	1.41	2.34*	.007*

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

group, but there was no longer a difference on Computation - Subtraction (312). For Identifying Triangles (321) there was a significantly higher adjusted score for the Low-SMSG group in the covariance analysis; whereas the Low-State group had higher raw scores in the analysis of variance. The differential results obtained for Comprehension - Individual (329) at the two socio-economic levels remain unchanged.

Summary of Comparison of Cells at End of First Grade

As a whole, the two curricula produced comparable results at the end of first grade, but there were some differences which seemed to reflect the different emphasis in the two curricula. Thus, the SMSG groups had higher scores on Number Line and Identifying Rectangles, topics that were more prominent in the SMSG curriculum. The emphasis on computation, addition and subtraction, in the State curriculum resulted in higher raw and adjusted scores on scales which measured these skills for the Low-State group; but only the F-value for the Computation - Addition scale reached a significant value.

Chapter 4

END-OF-SECOND-GRADE SCALES: PREDICTIONS FROM FIRST GRADE SCALES AND COMPARISONS BY TEXT AND SOCIO-ECONOMIC LEVEL

All analyses in this chapter include both the students originally in the sample and the students added at the end of first grade. (See Chapter 1 for a description of the sample used in the study.) The test battery administered at the end of second grade consisted of scales that were constructed to measure the general areas which had been covered in the first grade. These areas were: comprehension, number comparison, place value, application, rationals, computation, and geometry. In addition, the test battery included scales designed to measure knowledge of the geometric concepts of polygons and congruence, and ability to distinguish congruent and similar figures (the latter ability was measured in a scale called "Similarity"). In place of the scale Curved Figures, used in the previous year, a scale, Curved and Open Figures, was constructed which measured the ability to exclude curved and open figures from the class of polygons.

Some scales were introduced to measure areas that had been covered previously in kindergarten. There was a scale to measure mathematics vocabulary, as there had been in kindergarten but not in first grade. A counting scale was also used, but this was a poor scale both in having a very low value for Cronbach's alpha and having a mean too close to the maximum value. Finally, a group-administered version of the scale Ordering Pictured Sets, which had been given previously in kindergarten, was used.

In addition to the mathematics tests, a measure of reading ability was obtained from the Stanford Achievement Test, Reading, Primary II, Form W (SAT) administered by the school district at the end of second grade. A measure of intelligence was obtained from the individually-administered subtests of the Wechsler Intelligence Scale for Children (WISC). The same subtests of the WISC were chosen as had been selected for the WPPSI in kindergarten.

Stepwise Regressions

Stepwise regressions were run using the end-of-first-grade scales to predict the end-of-second-grade scales. Since the Raven Progressive Matrices Test was given only to the students that had been in the sample originally, and not

to the students added at the end of first grade, the regressions were first run without the Raven Test in order to use the total sample. Another analysis was then performed with the Raven included.

Stepwise Regressions with the Raven Test Excluded from the Predictors

The results of the stepwise regressions to be discussed in this section apply to the total sample since the Raven was not used in the analyses. Means and standard deviations for end-of-first-grade scales (covariates) and end-of-second-grade scales (dependent variables) obtained from the stepwise regression analyses are given in Table 4.1.

Successive values for multiple correlations obtained in predicting the second grade scales are given in Table 4.2. (The correlation matrices for this analysis are shown in Table A4.1 in the Appendix.) As can be seen from Table 4.2, the first grade scales generally yielded fairly high values for the multiple correlations for most of the second grade scales. Exceptions occurred for Counting (509) and for the five geometry scales, Identifying Polygons (521), Curved and Open Figures (522), Identifying Triangles (523), Congruence (524), and Similarity (525). (Scale 509 also had a very low value of $\alpha = .29$ for Cronbach's alpha.) The maximum values for the multiple correlations were generally higher than those that had been obtained in the prediction of the end-of-first-grade scales (see Table 3.2) Since there is a much closer correspondence between the mathematics scales given in the first and second grades than between those given in kindergarten and first grade, this result would be expected.

The first scale to enter in most of the stepwise regressions was Kuhlmann-Anderson IQ, scale M324, and the second predictor to enter was generally the first grade mathematics scale which corresponded to the second grade scale being predicted. For the scales Place Value (504), Number Line (505), and Computation - Addition (510), however, the first variable to enter the prediction equation was the corresponding mathematics scale from the first grade test rather than scale M324 from the K-A Test. Inspection of the regression equations in Table 4.3 shows that the standardized regression coefficients for the first few variables entering each of the equations were generally of about the same order of magnitude. The K-A IQ scale and the corresponding mathematics scale from first grade generally accounted for most of the variance.

The reading scales from the second grade Stanford Achievement Test are predicted mostly by the SAT reading scales from the first grade, with the K-A Test only contributing to a minor extent in the prediction equation. For the scales from the WISC, the performance tests are predicted best by the K-A Test, but the verbal scales have Application (309) as the leading predictor.

Table 4.1

Means and Standard Deviations
of End-of-First-Grade Scales and End-of-Second-Grade Scales
Total Sample

Covariate Scales		MN	SD
Math Scales (N = 752)			
Place Value	306	4.37	2.05
No. Compare	307	5.14	1.51
No. Line	308	3.20	1.30
Application	309	4.13	1.67
Rationals	310	2.84	1.34
Compute-Add	311	7.02	2.29
Compute-Subtract	312	4.85	3.09
Compute-Mult	313	0.33	0.68
Ident Triangle	321	4.55	1.86
Ident Rectang	322	2.48	1.50
Curved Figure	323	3.50	1.42
Comprehend-Gp	328	1.73	1.08
Comprehend-Ind	329	2.28	1.24
SAT Read-Tot #Rt	A209	39.28	16.16
IQ: Kuhl-Ander	M324	107.94	13.99

(continued)

Note: Statistics obtained from stepwise regressions using the end-of-first grade scales as covariates.

The end-of-first-grade statistics are from regressions of the end-of-second-grade math scales.

Table 4.1

(second page)

Dependent Variable Scales		MN	SD
Math Scales (N = 752)			
Vocabulary-Gp	501	17.54	3.29
Comprehend-Gp	502	4.61	1.90
No. Compare	503	5.17	1.90
Place Value	504	3.56	2.14
No. Line	505	3.74	1.40
Application	506	4.77	1.93
Rationals	507	3.57	1.56
Order Sets PC-Gp	508	1.60	1.20
Counting	509	1.77	0.49
Compute-Add	510	5.27	2.03
Compute-Subtract	511	4.34	2.11
Compute-Mult	512	2.18	2.48
Ident Polygon	521	2.42	2.69
Curved/Open Fig.	522	6.13	1.24
Ident Triangle	523	4.74	1.75
Congruence	524	3.59	0.90
Similarity	525	0.54	0.74
WISC Scales (N = 813)			
WISC Vocabulary	M305	10.88	3.31
WISC Simil	M306	11.29	3.23
WISC Pict Compl	M307	10.01	2.72
WISC Block Des	M308	10.92	2.99
WISC Total	M311	43.10	9.10
SAT Scales (N = 800)			
SAT Word #Rt	A301	17.44	7.44
SAT Paragraph #Rt	A303	28.12	12.05
SAT Read-Tot #Rt	A305	45.52	19.33

Table 4.2

Order of Entry and Multiple Correlations
between End-of-Second-Grade Scales and End-of-First-Grade Scales
Total Sample

Covariate Scales	Dependent Variables: Mathematics Scales								
	501	502	503	504	505	506	507	508	509
Place Value 306				1;.62					
No. Compare 307	2;.65		2;.66		2;.46			3;.60	
No. Line 308		4;.64	3;.69		1;.40				
Application 309	3;.69		4;.71	3;.71		2;.63	3;.44		
Rationals 310									
Compute-Add 311							2;.42		1;.16
Compute-Subtract 312	4;.70	2;.60	5;.72	2;.69		3;.67		2;.58	
Compute-Mult 313									
Ident Triangle 321									
Ident Rectang 322									
Curved Figure 323									
Comprehend-Gp 328									
Comprehend-Ind 329									
SAT Read-Tot #Rt A209		3;.62		4;.73					
IQ: Kuhl-Ander M324	1;.58	1;.54	1;.59		3;.48	1;.55	1;.37	1;.53	2;.19
Maximum Multiple R	.72	.66	.73	.74	.49	.68	.45	.62	.20

(continued)

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the multiple R when the F-value to enter is less than 2.0.

Table 4.2

(second page)

Covariate Scales	Dependent Variables: Mathematics Scales							
	510	511	512	521	522	523	524	525
Place Value 306			4;.66				1;.08	
No. Compare 307	3;.67	4;.67						
No. Line 308					3;.12			
Application 309				2;.20				
Rationals 310								2;.20
Compute-Add 311	1;.58	3;.66			2;.10			
Compute-Subtract 312	4;.69	2;.64	2;.61				2;.10	
Compute-Mult 313			3;.64			3;.30		1;.18
Ident Triangle 321				3;.22	1;.07	1;.22		
Ident Rectang 322								
Curved Figure 323								3;.21
Comprehend-Gp 328					4;.14		3;.12	
Comprehend-Ind 329				1;.17				
SAT Read-Tot #Rt A209			5;.67					
IQ: Kuhl-Ander M324	2;.65	1;.56	1;.53			2;.28		
Maximum Multiple R	.70	.6[illegible]	.68	.22	.14	.31	.12	.21

(continued)

Table 4.2

(third page)

Covariate Scales	Dependent Variables							
	WISC Scales					SAT Scales		
	M305	M306	M307	M308	M311	A301	A303	A305
Place Value 306			2;.40		4;.67			
No. Compare 307	4;.52	3;.52						
No. Line 308	3;.51	2;.48		2;.55	2;.62			
Application 309	1;.41	1;.41			3;.66			
Rationals 310								
Compute-Add 311				3;.56				
Compute-Subtract 312								
Compute-Mult 313				4;.58				
Ident Triangle 321								
Ident Rectang 322								
Curved Figure 323								
Comprehend-Gp 328								
Comprehend-Ind 329								
SAT Read-Tot #Rt A209						1;.74	1;.78	1;.79
IQ: Kuhl-Ander M324	2;.48	4;.53	1;.35	1;.48	1;.54	2;.76	2;.81	2;.82
Maximum Multiple R	.53	.54	.42	.59	.67	.77	.82	.83

Table 4.3

Regression Equations for Prediction of
End-of-Second-Grade Scales From End-of-First-Grade Scales
Total Sample

A. Mathematics Scales

DEPENDENT VARIABLE 501 VOCABULARY

STEP NUMBER 4

MULTIPLE R 0.7018
STD. ERROR OF EST. 2.3503

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 5.40670)				
307	NUMBER CMPARSN	0.5359	0.2454	0.06961	59.2618
309	APPLICATION	0.3759	0.1903	0.06440	34.0611
312	COMPUTE:SUB	0.2030	0.1904	0.03481	34.0225
M324	IQ:KUHL-ANDER	0.0634	0.2696	0.00782	65.6977

DEPENDENT VARIABLE 502 COMPREHENSION

STEP NUMBER 4

MULTIPLE R 0.6361
STD. ERROR OF EST. 1.4671

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -1.32702)				
308	NUMBER LINE	0.2344	0.1602	0.04945	22.4605
312	COMPUTE:SUB	0.1265	0.2058	0.02241	31.8298
A209	#RT:SAT TOTAL	0.0207	0.1761	0.00433	22.8116
M324	IQ:KUHL-ANDER	0.0349	0.2573	0.00500	48.6933

DEPENDENT VARIABLE 503 NUMBER CMPARSN

STEP NUMBER 5

MULTIPLE R 0.7224
STD. ERROR OF EST. 1.3187

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -1.80399)				
307	NUMBER CMPARSN	0.2536	0.2010	0.03964	40.9239
308	NUMBER LINE	0.2909	0.1984	0.04498	41.8441
309	APPLICATION	0.1779	0.1560	0.03624	24.1085
312	COMPUTE:SUB	0.0965	0.1567	0.01988	23.5660
M324	IQ:KUHL-ANDER	0.0327	0.2410	0.00452	52.4028

(continued)

Table 4.3
(second page)

A. Mathematics Scales (continued)

DEPENDENT VARIABLE 504 PLACE VALUE

STEP NUMBER 4

MULTIPLE R 0.7278
STD. ERROR OF EST. 1.4689

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -0.65650)				
306	PLACE VALUE	0.3055	0.2935	0.03405	80.5099
309	APPLICATION	0.2819	0.2199	0.04039	48.7387
312	COMPUTE:SUB	0.1440	0.2081	0.02301	39.1837
A209	#RT:SAT TOTAL	0.0258	0.1955	0.00415	38.6983

DEPENDENT VARIABLE 505 NUMBER LINE

STEP NUMBER 3

MULTIPLE R 0.4792
STD. ERROR OF EST. 1.2291

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 0.18707)				
307	NUMBER CMPARSN	0.1730	0.1865	0.03519	24.1585
308	NUMBER LINE	0.2572	0.2386	0.04081	39.7029
M324	IQ:KUHL-ANDER	0.0171	0.1710	0.00393	18.8581

DEPENDENT VARIABLE 506 APPLICATION

STEP NUMBER 3

MULTIPLE R 0.6667
STD. ERROR OF EST. 1.4447

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -1.59948)				
309	APPLICATION	0.3068	0.2643	0.03804	65.0520
312	COMPUTE:SUB	0.1665	0.2657	0.02124	61.4644
M324	IQ:KUHL-ANDER	0.0398	0.2876	0.00462	74.1913

(continued)

Table 4.3
(third page)

A. Mathematics Scales (continued)

DEPENDENT VARIABLE 507 RATIONALS

STEP NUMBER 3

MULTIPLE R 0.4413
STD. ERROR OF EST. 1.4061

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -0.36190)				
309	APPLICATION	0.1569	0.1672	0.03675	18.2276
311	COMPUTE:ADD	0.1207	0.1766	0.02713	19.7740
M324	IQ:KUHL-ANDER	0.0225	0.2016	0.00444	25.7454

DEPENDENT VARIABLE 508 ORDR:PICSET:GR

STEP NUMBER 3

MULTIPLE R 0.5973
STD. ERROR OF EST. 0.9658

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -2.51022)				
307	NUMBER CMPARSN	0.1404	0.1760	0.02749	26.0896
312	COMPUTE:SUB	0.0929	0.2385	0.01372	45.8096
M324	IQ:KUHL-ANDER	0.0272	0.3166	0.00316	74.1878

DEPENDENT VARIABLE 510 COMPUTE:ADD

STEP NUMBER 4

MULTIPLE R 0.6868
STD. ERROR OF EST. 1.4761

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -1.61753)				
307	NUMBER CMPARSN	0.2441	0.1816	0.04237	33.1901
311	COMPUTE:ADD	0.2369	0.2678	0.03168	55.8984
312	COMPUTE:SUB	0.1343	0.2047	0.02394	31.4606
M324	IQ:KUHL-ANDER	0.0308	0.2125	0.00492	39.1355

(continued)

Table 4.3
(fourth page)

A. Mathematics Scales (continued)

DEPENDENT VARIABLE 511 COMPUTE:SUB

STEP NUMBER 4

MULTIPLE R 0.6739
STD. ERROR OF EST. 1.5604

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -3.12913)				
307	NUMBER CMPARSN	0.2087	0.1493	0.04479	21.7189
311	COMPUTE:ADD	0.1899	0.2064	0.03349	32.1605
312	COMPUTE:SUB	0.1537	0.2252	0.02531	36.8702
M324	IQ:KUHL-ANDER	0.0400	0.2655	0.00520	59.1745

DEPENDENT VARIABLE 512 COMPUTE:MULT

STEP NUMBER 5

MULTIPLE R 0.6684
STD. ERROR OF EST. 1.8539

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -4.54899)				
306	PLACE VALUE	0.2050	0.1693	0.04212	23.6847
312	COMPUTE:SUB	0.1391	0.1728	0.02903	22.9621
313	COMPUTE:MULT	0.6383	0.1734	0.11223	32.3459
A209	#RT:SAT TOTAL	0.0255	0.1657	0.00556	20.9658
M324	IQ:KUHL-ANDER	0.0366	0.2060	0.00636	33.0855

DEPENDENT VARIABLE 523 IDFY TRIANGS

STEP NUMBER 3

MULTIPLE R 0.2996
STD. ERROR OF EST. 1.6747

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 1.90404)				
313	COMPUTE:MULT	0.2737	0.1055	0.09564	8.1907
321	IDFY TRIANGS	0.1851	0.1969	0.03310	31.2619
M324	IQ:KUHL-ANDER	0.0176	0.1408	0.00463	14.4611

(continued)

Table 4.3
(fifth page)

B. WISC Scales

DEPENDENT VARIABLE M305 VOCB:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.5157
STD. ERROR OF EST. 2.8458

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 2.11282)				
307	NUMBER CMPARSN	0.2766	0.1260	0.08060	11.7820
308	NUMBER LINE	0.4437	0.1724	0.09049	24.0443
309	APPLICATION	0.4265	0.2129	0.07222	34.8742
M324	IQ:KUHL-ANDER	0.0388	0.1683	0.00844	21.1514

DEPENDENT VARIABLE M306 SIML:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.5288
STD. ERROR OF EST. 2.7513

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 2.87618)				
307	NUMBER CMPARSN	0.3656	0.1707	0.07792	22.0204
308	NUMBER LINE	0.4662	0.1856	0.08749	28.3952
309	APPLICATION	0.3900	0.1995	0.06982	31.2026
M324	IQ:KUHL-ANDER	0.0321	0.1425	0.00816	15.4454

DEPENDENT VARIABLE M307 P.CM:WISC SCA

STEP NUMBER 2

MULTIPLE R 0.3950
STD. ERROR OF EST. 2.4974

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.71243)				
306	PLACE VALUE	0.2777	0.2100	0.04836	32.9812
M324	IQ:KUHL-ANDER	0.0473	0.2501	0.00691	46.7662

(continued)

Table 4.3
(sixth page)

B. WISC Scales (continued)

DEPENDENT VARIABLE M308 BLKD:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.5757
STD. ERROR OF EST. 2.4513

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 1.40294)				
308	NUMBER LINE	0.5179	0.2230	0.07725	44.9493
311	COMPUTE:ADD	0.1831	0.1455	0.04213	18.8839
313	COMPUTE:MULT	0.5493	0.1194	0.14324	14.7061
M324	IQ:KUHL-ANDER	0.0597	0.2868	0.00711	70.4832

DEPENDENT VARIABLE M311 TOTL:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.6710
STD. ERROR OF EST. 6.7667

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 11.23662)				
306	PLACE VALUE	0.7658	0.1727	0.14746	26.9705
308	NUMBER LINE	1.6214	0.2293	0.21569	56.5097
309	APPLICATION	1.0751	0.1953	0.17730	36.7664
M324	IQ:KUHL-ANDER	0.1762	0.2780	0.02001	77.4974

(continued)

Table 4.3
(seventh page)

C. SAT Scales

DEPENDENT VARIABLE A301 #RT:SAT WORD

STEP NUMBER 2

MULTIPLE R 0.7587
STD. ERROR OF EST. 4.8515

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -4.80621)				
A209	#RT:SAT TOTAL	0.2978	0.6401	0.01273	546.9399
M324	IQ:KUHL-ANDER	0.0987	0.1890	0.01430	47.6613

DEPENDENT VARIABLE A303 #RT:SAT PGPH

STEP NUMBER 2

MULTIPLE R 0.8099
STD. ERROR OF EST. 7.4306

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -15.51527)				
A209	#RT:SAT TOTAL	0.5148	0.6506	0.01950	696.8582
M324	IQ:KUHL-ANDER	0.2186	0.2459	0.02190	99.5771

DEPENDENT VARIABLE A305 #RT:SAT TOTAL

STEP NUMBER 2

MULTIPLE R 0.8183
STD. ERROR OF EST. 11.1265

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -20.23868)				
A209	#RT:SAT TOTAL	0.8078	0.6682	0.02920	765.2151
M324	IQ:KUHL-ANDER	0.3179	0.2341	0.03280	93.9417

2

Stepwise Regressions with the Raven Test Included as a Predictor

Regression equations had also been obtained with the Raven Progressive Matrices Test included among the predictor scales. In these analyses, only the original sample was included since the Raven had not been administered to the students entering the study at the end of first grade. For the mathematics scales, the Raven scales either did not enter at all among the leading predictors or, if they did enter, they were the third or fourth variable entering the equation and contributed only a small amount to the variance predicted. (The results from these analyses have not been included.) For the WISC scales, the Raven scales played a much more important role in predicting intelligence scores. The successive multiple correlations with Raven scales included are given in Table 4.4. The means and standard deviations for all variables entering the analyses, the correlation matrix, and the regression equations are given in the Appendix in Tables A4.2A, A4.2B, and A4.2C, respectively. The total score from the Raven Test was the best predictor for all the WISC scales except for Similarities (M306). For Similarities, Set B of the Raven Test (M203) entered the prediction equation later than some of the mathematics scales, but the standardized regression coefficient was almost identical to the coefficient for Number Comparison - Order (307), the scale that had the highest value for the coefficient in the four-variable predictor equation.

Comparison of the Roles Played by Scales from the MRT, WPPSI, Raven, and K-A in Predicting Performance in the Following Year

In the prediction of first grade mathematics scales, the scale which had played the role of principal predictor, as the Kuhlmann-Anderson Test did for second grade scales (see Table 4.2), was Numbers (R205) of the Metropolitan Readiness Test (refer to Table 3.2). In the case of Numbers, the standardized regression coefficients, however, had been considerably larger than those found for the other predictor variables, rather than of the same order of magnitude as was the case with the K-A Test. (See Table 3.3 for the regression equations predicting first grade scales and Table 4.3 for the regression equations predicting second grade scales.)

To obtain a better picture of the factors involved in predicting first grade scores, Numbers had been eliminated from the analyses and the regressions had been rerun with the remaining variables. These results were discussed in Chapter 3 and the statistics were presented in Tables A3.2 and A3.3. The multiple R had remined essentially unchanged when Numbers had been omitted. The scale Matching (R203) from the MRT had then become the leading predictor. The standardized regression coefficient of Matching in the equations in Table A3.3 had been, however, of about the same order of magnitude as the other variables,

Table 4.4

Order of Entry and Multiple Correlations
between WISC Scales and End-of-First-Grade Scales
Total Sample

Covariate Scales		Dependent Variables: WISC Scales				
		M305	M306	M307	M308	M311
Place Value	306			3;.43	3;.65	3;.69
No. Compare	307		2;.47			
No. Line	308		1;.39		4;.66	4;.70
Application	309	2;.48				
Rationals	310	4;.51				
Compute-Add	311					
Compute-Subtract	312					
Compute-Mult	313		4;.54			
Ident Triangle	321					
Ident Rectang	322					
Curved Figure	323					
Comprehend-Gp	328					
Comprehend-Ind	329					
SAT Read-Tot #Rt	A209					
IQ: Kuhl-Ander	M324	3;.50		2;.42	2;.63	2;.66
Raven Set A	M201					
Raven Set Ab	M202					
Raven Set B	M203		3;.51			
Raven-Total	M204	1;.42		1;.38	1;.56	1;.59
Maximum Multiple R		.55	.57	.44	.68	.73

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the multiple R when the F-value to enter is less than 2.0.

as was the case when the K-A Test was used as a predictor for the end-of-second-grade scales in Table 4.3.

The Kuhlmann-Anderson Test has arithmetic problems and items requiring matching in addition to other types of items used to measure general aptitude. It is probably these items that account primarily for the success of IQ: K-A (M324) in predicting performance on mathematics scales, just as Matching (R203) and Numbers (R205) from the MRT were the best predictors for the end-of-first-grade scales.

The conclusion that the Kuhlmann-Anderson Test is related more closely to the Metropolitan Readiness Test than to intelligence as measured by the WPPSI is supported by the fact that the Numbers scale of the MRT had been the best predictor of the K-A Test rather than one of the WPPSI intelligence scales.

The Raven, WPPSI, and WISC seemed to be related more to each other than to any other tests used in the study. The scales of the WPPSI (Block Design, Similarities, Vocabulary, and Picture Completion) and the scales of the Raven Test had both failed to improve prediction of the mathematics scales. The WPPSI scales were, however, the best predictors for the Raven scales, and the Raven scales were the best predictors for the WISC scales when the regressions were performed for variables in successive years.

The correlation matrices associated with each of the stepwise regression analyses, discussed above, were studied. It was found that the various measures of intelligence and of readiness had quite similar correlations with mathematics scales. Thus, the differences in the roll played by the different intelligence and readiness scales did not result from widely different patterns of correlations.

Text and Socio-economic Comparisons

The text and socio-economic comparisons performed for the scales given at the end of first grade (discussed in Chapter 3) used the original sample of students. The analyses of variance for the end-of-first-grade scores was therefore repeated to provide a picture of the new selected sample at the end of first grade. (See Chapter 1 for a description of the new selected sample.) Analyses of variance and covariance were then performed for the end-of-second-grade scales.

Analyses of Variance for End-of-First-Grade Scales for the Sample Remaining At the End of Second Grade

The analyses of variance for the first grade mathematics scales for the

sample including selected new students as well as the selected students from the original sample, gave results which corresponded closely to those obtained with the original students. (The results for the original sample were given previously in Tables 3.4A and 3.4B, and the results for the sample with original and new students included are given in Tables A4.3 and A4.3B in the Appendix.) All the discussion of the analyses of variance for the first grade mathematics scales in Chapter 3 would, therefore, be applicable to the present sample.

There were, however, some differences between the two samples in the results obtained with the SAT and the K-A Test. For the comparison of text in the low socio-economic groups, the F-value was larger in the sample which included both new and original students than it had been with the original sample (though the significance level was reached in both analyses) and the high and low socio-economic groups using the SMSG curriculum no longer differed significantly. Also, for the SAT a significant difference was found for the two curricula in the middle socio-economic groups, with the Middle-State group having the higher value. (The F-value was just at the value needed for significance here.)

Analyses of Variance for End-of-Second-Grade Scales

The results of the analyses of variance for the end-of-second-grade scales are given in Tables 4.5A and 4.5B. A significant overall socio-economic effect was found for all scales except Counting (509) and two geometry scales, Identifying Polygons (521) and Congruence (524). (Scale 509 had a very low value, $\alpha = .29$, for Cronbach's alpha.) In the comparison of the two socio-economic groups in the two curricula separately, the middle group surpassed the low group on all scales except for four geometry scales (522-525) in the group following the State curriculum.

Overall text effects were found for Number Line (505), Rationals (507), Computation - Addition (510), Computation - Subtraction (511), and four of the five geometry scales, Identifying Polygons (521), Curved and Open Figures (522), Identifying Triangles (523), and Similarity (525). Significant interaction was found for Rationals, Computation - Addition, and the four geometry scales for which significant text effects had been found. The SMSG group surpassed the State group at both socio-economic levels for Number Line and Identifying Polygons. For Identifying Triangles and Similarity, the SMSG curriculum resulted in better performance only for the middle group. In the case of the low groups, the State group was better than the SMSG group on Computation - Addition, Computation - Subtraction, and on Curved Open Figures. The Middle-State group obtained significantly better scores than the Middle-SMSG group on Computation - Subtraction and Rationals.

Table 4.5A

Cell Means and Standard Deviations
of End-of-Second-Grade Scales
Selected Sample

Scales		SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
Math Scales ($568 \leq N \leq 581$)									
Vocabulary-Gp	501	16.07	3.35	18.80	2.65	15.83	3.58	19.18	2.57
Comprehension-Gp	502	3.89	1.81	5.15	1.83	3.95	1.95	5.20	1.93
No. Compare	503	4.25	1.91	6.10	1.49	4.24	1.83	6.12	1.48
Place Value	504	2.43	1.88	4.58	1.96	2.82	2.02	4.61	1.90
No. Line	505	3.51	1.20	4.43	1.28	3.21	1.34	3.70	1.44
Application	506	3.87	1.73	5.40	1.75	4.22	1.75	5.39	1.81
Rationals	507	3.25	1.39	3.76	1.47	3.17	1.52	4.39	1.62
Order Sets PC-Gp	508	1.00	1.15	2.04	1.10	1.26	1.13	1.95	1.08
Counting	509	1.76	0.53	1.74	0.50	1.68	0.57	1.85	0.39
Compute-Add	510	3.68	2.18	5.96	1.67	5.04	2.05	6.25	1.80
Compute-Subtract	511	2.99	2.03	4.87	1.87	3.95	2.19	5.45	1.81
Compute-Mult	512	0.90	1.59	3.48	2.51	1.36	1.85	3.29	2.64
Ident Polygons	521	2.28	2.47	3.27	3.39	1.75	1.56	0.94	1.20
Curved/Open Fig.	522	5.45	1.83	6.23	1.21	6.20	1.21	6.35	1.03
Ident Triangle	523	4.47	2.03	5.22	1.57	4.36	1.88	4.48	1.67
Congruence	524	3.44	1.09	3.53	0.90	3.54	0.95	3.60	1.09
Similarity	525	0.51	0.69	0.85	0.89	0.43	0.63	0.48	0.71
WISC Scales ($512 \leq N 575$)									
WISC Vocabulary	M305	9.60	2.51	12.51	2.75	9.32	2.96	12.94	3.54
WISC Simil	M306	10.62	2.61	12.71	3.39	10.44	2.92	12.51	2.79
WISC Pict Compl	M307	9.16	2.47	11.07	2.65	9.34	2.65	10.49	2.61
WISC Block Des	M308	9.74	2.23	11.97	3.02	9.94	2.77	12.44	2.64
WISC Total	M311	39.12	6.75	48.35	8.59	39.08	7.24	48.38	8.10
SAT Scale ($N = 559$)									
SAT Read-Tot #Rt	A305	38.11	17.09	52.41	19.72	36.91	15.81	56.22	18.59

N = 525 for Scale 507.

Note: Means obtained from analysis of variance program.

Standard deviations obtained from heterogeneity of regression program.

Table 4.5B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-Second-Grade Scales
Selected Sample

Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales							
Vocabulary-Gp 501	133.29*	0.07	1.42	0.50	0.92	59.64*	73.64*
Comprehension-Gp 502	66.64*	0.14	0.00	0.09	0.05	37.20*	30.15*
No. Compare 503	162.58*	0.00	0.02	0.00	0.01	88.62*	75.33*
Place Value 504	138.00*	1.58	1.20	3.32	0.01	92.57*	51.15*
No. Line 505	40.06*	21.40*	3.67	4.40*	18.36*	38.16*	8.78*
Application 506	80.85*	1.34	1.46	3.36	0.00	58.41*	27.30*
Rationals 507	42.02*	4.31*	7.19*	0.19	10.68*	7.29*	41.62*
Order Sets PC-Gp 508	79.58*	0.79	3.42	4.50*	0.40	65.11*	22.54*
Counting 509	3.08	0.07	4.87*	2.27	2.61	0.11	7.08*
Compute-Add 510	110.09*	24.47*	10.19*	39.47*	1.33	104.69*	24.10*
Compute-Subtract 511	93.46*	19.63*	1.15	18.04*	4.86*	64.47*	33.42*
Compute-Mult 512	149.46*	0.56	3.07	3.73	0.43	109.23*	49.61*
Ident Polygons 521	0.19	48.48*	19.28*	3.94*	55.51*	13.02*	7.08*
Curved/Open Fig. 522	14.81*	13.43*	7.06*	23.81*	0.44	23.65*	0.64
Ident Triangle 523	7.77*	7.17*	4.05*	0.26	9.47*	12.87*	0.27
Congruence 524	0.75	1.00	0.02	0.77	0.32	0.56	0.24
Similarity 525	9.79*	12.12*	4.96*	0.94	14.04*	16.04*	0.37
WISC Scales							
WISC Vocabulary M305	178.20*	0.10	2.09	0.76	1.34	78.63*	99.58*
WISC Simil M306	70.84*	0.59	0.00	0.31	0.29	39.82*	31.83*
WISC Pict Compl M307	48.41*	0.82	2.86	0.37	2.91	41.56*	12.61*
WISC Block Des M308	103.61*	2.13	0.35	0.45	1.82	51.03*	52.76*
WISC Total M311	197.68*	0.00	0.00	0.00	0.00	108.96*	90.56*
SAT Scale							
SAT Read-Tot #Rt A305	118.82*	0.72	2.64	0.35	2.68	47.32*	71.91*

$559 \leq N \leq 589$, except for Scale 507, where N = 525.

*$p \leq .05$

Analyses of Covariance for End-of-Second-Grade Scales

Tables 4.6A and 4.6B give the adjusted means and F-values obtained in the analyses of covariance. The covariates for all scales except those from the WISC can be found by inspection of Table 4.2. For the WISC scales the covariates, which included the Raven scales, are shown in Table 4.4. Product-moment correlations and regression weights for each sub-group are given in the Appendix Tables A4.4 and A4.5, respectively.

Significant, overall socio-economic effects were found for the same scales in the analyses of covariance, shown in Table 4.6B, as had been found in the analyses of variance, shown in Table 4.5B, except for the scales Number Line (505), Identifying Triangles (523), Similarity (525) and the WISC scale, Similarities (M306). Although there was no significant overall socio-economic effect for the three scales, Number Line, Identifying Triangles, and Similarity, there were significant differences for the two socio-economic levels in the SMSG group. Comparisons of socio-economic levels separately for the two curricula for the scales for which significant overall effects had been found showed that in the SMSG curriculum the middle group achieved significantly higher adjusted scores than the low group on almost all scales; but in the State curriculum there were no socio-economic differences on some scales. The two socio-economic groups using the State curriculum obtained comparable adjusted scores on Whole Number Comprehension (502), Number Line (505), Application (506), Computation - Addition (510), and all geometry scales except Identifying Polygons (521). For the latter scale, it was the Low-State group that had the higher adjusted score rather than the Middle-State group, as was the case for the other significant socio-economic differences. The Middle-State group had higher adjusted scores than the Low-State group on the remaining scales.

As can be seen from inspection of the last column in Table 4.6B, there was a significant degree of heterogeneity of regression for a number of the scales. These scales were: Vocabulary (501), Ordering Pictured Sets (508), three computation scales (510, 511, and 512), and Identifying Polygons (521). For these scales the analyses of covariance are not valid and results of the covariance analyses must be considered descriptive.

The text effects found in the analyses of covariance (Table 4.6B) were essentially the same as had been found in the analyses of variance (Table 4.5B). Again there were significant overall text effects for Number Line (505), Rationals (507), Computation - Addition (510), Computation - Subtraction (511), Identifying Polygons (521), Curved and Open Figures (522) and Similarity (525). (There was, however, significant heterogeneity of regression for the Computation scales, 510 and 511.) Significant interaction effects were found along with

Table 4.6A

Cell Means Adjusted by Analysis of Covariance
for End-of-Second-Grade Scales
Using End-of-First-Grade Scales as Covariates
Selected Sample

Scales		SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
		ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Math Scales					
Vocabulary-Gp	501	16.85	17.88	16.61	18.10
Comprehension-Gp	502	4.11	4.69	4.38	4.73
No. Compare	503	4.65	5.47	4.72	5.50
Place Value	504	3.09	3.86	3.29	3.71
No. Line	505	3.58	4.11	3.52	3.40
Application	506	4.25	4.96	4.56	4.95
Rationals	507	3.45	3.55	3.38	4.25
Order Sets PC-Gp	508	1.22	1.79	1.42	1.71
Counting	509	1.80	1.71	1.71	1.80
Compute-Add	510	4.30	5.34	5.32	5.54
Compute-Subtract	511	3.52	4.28	4.29	4.79
Compute-Mult	512	1.30	2.75	1.93	2.76
Ident Polygons	521	2.45	3.04	1.84	0.80
Curved/Open Fig.	522	5.48	6.23	6.23	6.26
Ident Triangle	523	4.48	5.09	4.52	4.49
Congruence	524	3.42	3.49	3.62	3.51
Similarity	525	0.54	0.76	0.47	0.46
(Sample Sizes)		(122≤N≤151)	(144≤N≤150)	(158≤N≤168)	(80≤N≤84)
WISC Scales					
WISC Vocabulary	M305	10.05	12.14	9.95	12.65
WISC Simil	M306	11.23	11.81	11.18	11.69
WISC Pict Compl	M307	9.78	10.86	9.95	10.06
WISC Block Des	M308	10.34	11.10	10.90	11.74
WISC Total	M311	41.03	46.12	42.12	46.11
(Sample Sizes)		(101≤N≤111)	(103≤N≤105)	(113≤N≤118)	(50≤N≤52)
SAT Scales					
SAT Read-Tot #Rt	A305	42.76	48.34	42.13	49.31
(Sample Sizes)		(N = 119)	(N = 149)	(N = 161)	(N = 94)

N = 95 for Scale 507 in Cell A1.

Table 4.6B

Analyses of Covariance
Comparing Text and Socio-economic Effects
for End-of-Second-Grade Scales
Using End-of-First-Grade Scales as Covariates
Selected Sample

Scales	F-Values							Heterogeneity of Regression	
	Overall Effects			Pairwise Comparisons					
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales 493 ≤ N ≤ 545									
Vocabulary-Gp 501	26.92*	0.00	1.03	0.61	0.44	10.63*	18.62*	2.39*	.005*
Comprehension-Gp 502	9.49*	1.20	0.67	2.03	0.04	8.63*	2.73	0.72	.733
No. Compare 503	35.21*	0.16	0.02	0.17	0.03	22.18*	16.94*	1.06	.389
Place Value 504	17.40*	0.04	1.91	1.51	0.60	18.91*	4.09*	1.08	.377
No. Line 505	2.97	12.39*	8.71*	0.20	18.37*	12.04*	0.48	1.27	.251
Application 506	14.29*	1.31	1.41	3.06	0.00	14.07*	3.54	1.80	.066
Rationals 507	11.52*	5.42*	8.42*	0.17	12.94*	0.27	19.10*	0.86	.559
Order Sets PC-Gp 508	18.84*	0.45	2.36	2.76	0.33	19.34*	4.23*	2.23*	.019*
Counting 509	0.01	0.00	3.64	1.93	1.71	1.70	1.76	1.51	.171
Compute-Add 510	16.03*	17.50*	8.01*	27.61*	0.84	25.25*	0.99	2.51*	.003*
Compute-Subtract 511	14.17*	16.97*	0.69	13.79*	4.90*	11.86*	4.56*	2.80*	.001*
Compute-Mult 512	42.38*	3.86*	3.67	8.61*	0.00	39.92*	11.41*	2.52*	.003*
Ident Polygons 521	0.92	44.44*	14.30*	4.84*	46.55*	3.85*	9.79*	2.24*	.019*
Curved/Open Fig. 522	7.94*	8.99*	8.36*	20.31*	0.03	18.64*	0.02	0.42	.956
Ident Triangle 523	2.83	2.81	3.81	0.04	5.77*	7.20*	0.02	1.07	.383
Congruence 524	0.03	1.39	0.89	2.71	0.03	0.30	0.50	1.35	.208
Similarity 525	2.54	8.00*	3.05	0.77	8.69*	6.20	0.00	1.14	.329
WISC 367 ≤ N ≤ 380									
WISC Vocabulary M305	57.86*	0.49	1.12	0.08	1.28	28.40*	34.17*	0.47	.933
WISC Simil M306	2.66	0.09	0.01	0.02	0.06	1.93	1.16	1.45	.142
WISC Pict Compl M307	3.99*	1.36	3.18	0.25	3.56	8.72*	0.07	1.13	.338
WISC Block Des M308	8.18*	5.81*	0.03	3.23	2.75	4.97*	4.30*	3.10*	.000*
WISC Total M311	35.35*	0.61	0.67	1.62	0.00	29.97*	12.99*	1.28	.227
SAT N = 523									
SAT Read-Tot #Rt A305	44.64*	0.03	0.76	0.25	0.52	19.18*	27.48*	3.12*	.005*

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

the text effects for most of the scales. Text effects for Identifying Triangles (523) disappeared after the adjustment was made for the previous year's attainments.

In the pairwise text comparisons, the Low-State group still had higher adjusted scores than the Low-SMSG group on Computation - Addition (510) and - Subtraction (511), and also on Computation - Multiplication (513) which had not distinguished these groups in the analyses of variance. However, as noted previously, significant heterogeneity of regression was found for the three computation scales. There was no longer a difference between the low groups on Number Line (505) and Ordering Pictured Sets (508). For the middle groups, the differences found in the analyses of variance for Number Line (505), Rationals (507), and Computation - Subtraction (511) remained in the analyses of covariance, with the SMSG group obtaining a higher adjusted score on Number Line and the State group doing better on the other two scales. For the geometry scales text effects followed an inconsistent pattern, with higher adjusted scores appearing in different curricula for different scales and also being different for the two socio-economic levels.

Summary of Socio-economic and Text Comparisons at End of Second Grade

The middle socio-economic groups surpassed the low groups on almost all scales except for several geometry scales. Taking account of performance at the end of first grade made the two socio-economic groups comparable on a number of additional scales in the case of the State curriculum, but left the results essentially unchanged for the SMSG groups. In the covariance analyses for the State groups, there were no longer significant differences for Comprehension, Number Line, Application, and Computation - Addition. (For the latter scale there was, however, significant heterogeneity of regression.)

The State curriculum resulted in better performance for the low socio-economic group on Computation - Addition and - Subtraction, and this difference remained in the covariance analyses. (The statistical test for the computation scales was, however, invalidated by the heterogeneity of regression analysis.) For the middle groups, the State curriculum was more effective for Rationals and Computation - Subtraction. (Note, however, significant heterogeneity of regression found for the subtraction scale.) The SMSG curriculum was more effective for the middle group for mastering Number Line.

Chapter 5

END-OF-THIRD-GRADE SCALES: PREDICTIONS FROM SECOND GRADE SCALES AND COMPARISONS BY TEXT AND SOCIO-ECONOMIC LEVEL

Most of the end-of-third-grade mathematics scales were either identical to or extensions of the second grade mathematics scales. Scales which remained the same as the second grade scales were Place Value (702), Number Line (703), Rationals (705), and Computation - Multiplication (709). The scales Number Comparison - Order (701), Application (704), Computation - Addition (707), and Computation - Subtraction (708) were extensions of the corresponding scales administered at the end of second grade. (For the addition and subtraction scales some of the easiest second grade items had been dropped to form the third grade scales.) A new geometry scale, Structure of Space (706), replaced the previously used geometry scales. Two other scales, Computation (727) and Structure (728) were taken from the battery of scales administered to subjects in NLSMA at the beginning of fourth grade.[15] (The NLSMA Computation scale, 727, can be distinguished from the ELMA scales measuring ability in computation, 707, 708, and 709, by the fact that the ELMA scales have the words "Addition," "Subtraction," or "Multiplication" following the word "Computation.") Structure (728) had been constructed to measure understanding of basic properties of arithmetic as had the comprehension scales given in first and second grades of the present study.

Results of Stepwise Regressions

The variables entering in the stepwise regressions are shown in Table 5.1, and successive values of the multiple correlations are given in Table 5.2. (The correlation matrices on which the stepwise regressions were based are given in the Appendix in Table A5.1.)

As can be seen from Table 5.2, multiple correlations reached fairly high values for all scales, ranging from .54 - .77 for the mathematics scales, and from .84 - .88 for the reading scales. For the eight third grade scales that were derived from second grade scales, the corresponding second grade scale was

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(15) For a description of scales 727 and 728 in NLSMA, see NLSMA Reports No. 4, Description and Statistical Properties of X-Population Scales. Stanford: The School Mathematics Study Group, Stanford University, 1968.

Table 5.1

Means and Standard Deviations
of End-of-Second-Grade Scales and End-of-Third-Grade Scales
Total Sample

End-of-Second-Grade Scales: Covariates		Mean	Standard Deviation
Math Scales			
Vocabulary-Gp	501	17.62	3.24
Comprehend-Gp	502	4.67	1.87
No. Compare	503	5.24	1.90
Place Value	504	3.68	2.10
No. Line	505	3.75	1.38
Application	506	4.85	1.86
Rationals	507	3.61	1.54
Order Sets PC-Gp	508	1.63	1.20
Counting	509	1.78	0.48
Compute-Add	510	5.35	2.00
Compute-Sub	511	4.43	2.08
Compute-Mult	512	2.26	2.50
Ident Polygons	521	2.55	2.78
Curved/Open Fig.	522	6.14	1.27
Ident Triangle	523	4.73	1.74
Congruence	524	3.63	0.82
Similarity	525	0.56	0.76
SAT Scales			
SAT Word #Rt.	A301	17.78	7.47
SAT Paragraph #Rt.	A303	28.96	12.42
SAT Read-Tot #Rt.	A305	46.74	19.13
WISC Scales			
WISC Vocabulary	M305	10.97	3.32
WISC Similarities	M306	11.36	3.25
WISC Pict Compl	M307	10.03	2.70
WISC Block Design	M308	11.05	3.01
End-of-Third-Grade Scales: Dependent Variables			
Math Scales (N=583)			
No. Compare	701	4.87	1.75
Place Value	702	4.27	2.22
No. Line	703	3.78	1.35
Application	704	5.03	2.04
Rationals	705	4.13	1.79
Struct Space	706	4.38	1.71
Compute-Add	707	5.53	2.36
Compute-Sub	708	4.42	2.35
Compute-Mult	709	4.87	2.55
Computation	727	6.36	3.47
Structure	728	2.84	2.13
SAT Scales (N=604)			
SAT Word #Rt.	A401	23.18	7.58
SAT Paragraph #Rt.	A403	38.14	12.97
SAT Read-Tot #Rt.	A405	61.32	19.79

Note: Statistics obtained from stepwise regressions of the end-of-third-grade scales using the end-of-second-grade scales as covariates.

Table 5.2

Order of Entry and Multiple Correlations
between End-of-Third-Grade Scales and End-of-Second-Grade Scales
Total Sample

A. Dependent Variables: Mathematics Scales

Covariate Scales		Dependent Variables					
		701	702	703	704	705	706
Math Scales							
Vocabulary-Gp	501		3;.71				
Comprehend-Gp	502	3;.59			4;.69		
No. Compare	503	1;.52			2;.66		1;.48
Place Value	504	2;.57	1;.62		3;.68		3;.56
No. Line	505			2;.50			
Application	506				1;.59		
Rationals	507					2;.51	
Order Sets PC-Gp	508	4;.60					
Counting	509						
Compute-Addition	510		2;.68			3;.54	
Compute-Subtraction	511						
Compute-Mult	512					1;.46	
Ident Polygons	521						
Curved/Open Fig.	522						
Ident Triangle	523						
Congruence	524						
Similarity	525						
SAT Scale							
SAT Read-Tot #Rt	A305		5;.74	1;.43			2;.54
WISC Scales							
WISC Vocabulary	M305					4;.56	
WISC Similarities	M306						
WISC Pict Compl	M307						
WISC Block Design	M308		4;.73	3;.52			
Maximum Multiple R		.62	.75	.54	.72	.58	.60

(continued)

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the multiple R when the F-value to enter is less than 2.0.

Table 5.2

(second page)

A. Dependent Variables: Mathematics Scales (continued)

Covariate Scales		Dependent Variables				
		707	708	709	727	728
Math Scales						
Vocabulary-Gp	501	2;.65	1;.60			
Comprehend-Gp	502					
No. Compare	503				4;.74	
Place Value	504		5;.73			
No. Line	505					
Application	506		4;.72		3;.73	2;.65
Rationals	507					
Order Sets PC-Gp	508	4;.68		3;.70		
Counting	509					
Compute-Addition	510	1;.59	2;.67	1;.60		
Compute-Subtraction	511				1;.62	
Compute-Mult	512			4;.71		1;.58
Ident Polygons	521					
Curved/Open Fig.	522					
Ident Triangle	523					
Congruence	524					
Similarity	525					
SAT Scale						
SAT Read-Tot #Rt	A305	3;.67	3;.70	2;.66	2;.70	3;.68
WISC Scales						
WISC Vocabulary	M305					
WISC Similarities	M306					
WISC Pict Compl	M307					
WISC Block Design	M308					4;.69
Maximum Multiple R		.69	.76	.73	.77	.72

(continued)

Table 5.2

(third page)

B. Dependent Variables: SAT Scales

Covariate Scales		Dependent Variables		
		A401	A403	A405
Math Scales				
Vocabulary-Gp	501	2;.83		2;.87
Comprehend-Gp	502			
No. Compare	503		2;.84	
Place Value	504			
No. Line	505			
Application	506			
Rationals	507			
Order Sets PC-Gp	508			
Counting	509			
Compute-Addition	510			
Compute-Subtraction	511			
Compute-Mult	512			
Ident Polygons	521			
Curved/Open Fig.	522			
Ident Triangle	523			
Congruence	524			
Similarity	525			
SAT Scales				
SAT Word #Rt	A301			
SAT Para #Rt	A303			
SAT Read-Tot #Rt	A305	1;.81	1;.82	1;.84
WISC Scales				
WISC Vocabulary	M305			
WISC Similarities	M306			
WISC Pict Compl	M307			
WISC Block Design	M308			
Maximum Multiple R		.84	.86	.88

the first variable to enter the equation in four cases and the second predictor in two cases. Inspection of regressions equations in Table 5.3 shows that the values of the standardized regression coefficients for the first few variables entering the equation were generally about the same order of magnitude; exceptions occurred for Computation - Addition (707), for which the corresponding mathematics scale had a somewhat higher loading than the other scales, and the scales from the third grade SAT for which the second grade SAT scales had considerably larger loadings.

The scale Computation (727) taken from NLSMA was predicted best by Computation - Subtraction (511), while the scale Structure (728) from NLSMA had Computation - Multiplication (513) entering first in the equation. For both NLSMA scales, Application (506) and SAT-Reading (A305) were among the best predictors. As can be seen from the correlation matrix in the Appendix, Table A5.1, the correlations between the two NLSMA scales and the three ELMA computation scales (707 - 709) are all of about the same order of magnitude for each of the NLSMA scales, although the correlations with Scale 727 are slightly higher than those with Scale 728.

The new geometry scale, Structure of Space (706), showed no relationship to previous geometry scales. It was predicted best by Number Comparison - Order (503), SAT - Reading (A305), and Place Value (504).

The magnitudes of the multiple correlations were comparable to those obtained in stepwise regressions for second grade scales (see Table 4.2) except for the geometry scales for which the multiple correlations had been very low in the previous analyses. A difference in the two sets of stepwise regressions was the role played by intelligence scales. In the case of the second grade scales, the Kuhlmann-Anderson (K-A) test had a prominent role in the prediction equation while the WISC had a very small role as a predictor in the equations for third grade scales. This difference can be explained by the fact that the K-A test had many arithmetic items, in addition to more general measures of intelligence, while the shortened form of the WISC had no arithmetic scale. Comparison of the correlation matrices associated with the two analyses shows that the scale from the K-A test generally had somewhat higher correlations with second grade mathematics scales than the scales from the WISC had with third grade mathematics scales. In the stepwise regressions both for predicting second grade scales and for predicting third grade scales, the corresponding scale from the previous year was often either the best or second best predictor in the regression equation.

Table 5.3

Regression Equations for Prediction
of End-of-Third-Grade Scales from End-of-Second-Grade Scales
Total Sample

A. Mathematics Scales

DEPENDENT VARIABLE 701 NUMBER CMPARSN

STEP NUMBER 4

MULTIPLE R 0.5970
STD. ERROR OF EST. 1.4123

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 2.07533)				
502	COMPREHENSION	0.1379	0.1472	0.04086	11.3884
503	NUMBER CMPARSN	0.2234	0.2416	0.04181	28.5521
504	PLACE VALUE	0.1763	0.2113	0.03619	23.7444
508	ORDR:PICSET:GP	0.2017	0.1384	0.05999	11.3035

DEPENDENT VARIABLE 702 PLACE VALUE

STEP NUMBER 5

MULTIPLE R 0.7374
STD. ERROR OF EST. 1.5091

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -2.20964)				
501	VOCABULARY	0.1276	0.1859	0.02660	22.9957
504	PLACE VALUE	0.2546	0.2406	0.04118	38.2170
510	COMPUTE:ADD	0.2203	0.1984	0.04044	29.6742
A305	#RT:SAT TOTAL	0.0196	0.1699	0.00446	19.3071
M308	BLKD:WISC SCA	0.1090	0.1477	0.02412	20.4346

DEPENDENT VARIABLE 703 NUMBER LINE

STEP NUMBER 3

MULTIPLE R 0.5202
STD. ERROR OF EST. 1.1550

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 1.16631)				
505	NUMBER LINE	0.2345	0.2403	0.03751	39.0969
A305	#RT:SAT TOTAL	0.0194	0.2772	0.00281	47.4969
M308	BLKD:WISC SCA	0.0751	0.1677	0.01774	17.9066

(continued)

Table 5.3

(second page)

A. Mathematics Scales (continued)

DEPENDENT VARIABLE 704 APPLICATION

STEP NUMBER 4

MULTIPLE R 0.6935
STD. ERROR OF EST. 1.4724

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 0.87718)				
502	COMPREHENSION	0.1708	0.1571	0.04271	15.9919
503	NUMBER CMPARSN	0.2215	0.2064	0.04351	25.9209
504	PLACE VALUE	0.2042	0.2108	0.03883	27.6616
506	APPLICATION	0.2986	0.2739	0.04323	47.7155

DEPENDENT VARIABLE 705 RATIONALS

STEP NUMBER 4

MULTIPLE R 0.5572
STD. ERROR OF EST. 1.4899

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 1.24021)				
507	RATIONALS	0.2074	0.1789	0.04484	21.3927
510	COMPUTE:ADD	0.1728	0.1936	0.03694	21.8756
512	COMPUTE:MULT	0.1764	0.2463	0.03051	33.4244
M305	VOCAB:WISC SCA	0.0748	0.1388	0.02068	13.0760

DEPENDENT VARIABLE 706 STRUCT OF SPAC

STEP NUMBER 3

MULTIPLE R 0.5578
STD. ERROR OF EST. 1.4259

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 1.70220)				
503	NUMBER CMPARSN	0.2240	0.2481	0.04049	30.6130
504	PLACE VALUE	0.1419	0.1741	0.03690	14.7999
A305	#RT:SAT TOTAL	0.0211	0.2375	0.00398	28.0153

(continued)

Table 5.3

(third page)

A. Mathematics Scales (continued)

DEPENDENT VARIABLE 707 COMPUTE:ADD

STEP NUMBER 4

MULTIPLE R 0.6760
STD. ERROR OF EST. 1.7461

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -0.40135)				
501	VOCABULARY	0.1363	0.1871	0.03096	19.3794
508	ORDR:PICSET:GP	0.2864	0.1460	0.07528	14.4710
510	COMPUTE:ADD	0.3821	0.3242	0.04620	68.3940
A305	#RT:SAT TOTAL	0.0218	0.1783	0.00497	19.2924

DEPENDENT VARIABLE 708 COMPUTE:SUBT

STEP NUMBER 5

MULTIPLE R 0.7283
STD. ERROR OF EST. 1.6194

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -1.82161)				
501	VOCABULARY	0.1238	0.1706	0.02968	17.4016
504	PLACE VALUE	0.1972	0.1762	0.04423	19.8829
506	APPLICATION	0.2410	0.1914	0.05033	22.9420
510	COMPUTE:ADD	0.1954	0.1664	0.04480	19.0157
A305	#RT:SAT TOTAL	0.0242	0.1982	0.00478	25.5631

DEPENDENT VARIABLE 709 COMPUTE:MULT

STEP NUMBER 4

MULTIPLE R 0.7115
STD. ERROR OF EST. 1.7948

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 0.42642)				
508	ORDR:PICSET:GP	0.4469	0.2114	0.07334	37.1277
510	COMPUTE:ADD	0.3607	0.2840	0.04855	55.2072
512	COMPUTE:MULT	0.1868	0.1832	0.03774	24.4843
A305	#RT:SAT TOTAL	0.0293	0.2226	0.00496	34.9709

(continued)

Table 5.3

(fourth page)

A. Mathematics Scales (continued)

DEPENDENT VARIABLE 727 COMPUTE

STEP NUMBER 4

MULTIPLE R 0.7441
STD. ERROR OF EST. 2.3231

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -1.38505)				
503	NUMBER CMPARSN	0.3514	0.1924	0.06655	27.8813
506	APPLICATION	0.3987	0.2149	0.06953	32.8819
511	COMPUTE:SUBT	0.4394	0.2632	0.06209	50.0904
A305	#RT:SAT TOTAL	0.0436	0.2431	0.00664	43.2144

DEPENDENT VARIABLE 728 STRUCTURE

STEP NUMBER 4

MULTIPLE R 0.6913
STD. ERROR OF EST. 1.5437

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT -1.30928)				
506	APPLICATION	0.2542	0.2230	0.04272	35.4046
512	COMPUTE:MULT	0.2418	0.2836	0.03282	54.2815
A305	#RT:SAT TOTAL	0.0237	0.2145	0.00423	31.2096
M308	BLKD:WISC SCA	0.1146	0.1622	0.02474	21.4638

(continued)

Table 5.3

(fifth page)

B. SAT Scales

DEPENDENT VARIABLE A401 #RT:SAT WORD

STEP NUMBER 2

MULTIPLE R 0.8329
STD. ERROR OF EST. 4.1990

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 0.74864)				
501	VOCABULARY	0.5849	0.2562	0.06384	83.9427
A305	#RT:SAT TOTAL	0.2596	0.6555	0.01107	549.3972

DEPENDENT VARIABLE A403 #RT:SAT PGPH

STEP NUMBER 2

MULTIPLE R 0.8393
STD. ERROR OF EST. 7.0652

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 7.94113)				
503	NUMBER CMPARSN	1.6132	0.2355	0.18264	78.0180
A305	#RT:SAT TOTAL	0.4649	0.6854	0.01808	660.6982

DEPENDENT VARIABLE A405 #RT:SAT TOTAL

STEP NUMBER 2

MULTIPLE R 0.8686
STD. ERROR OF EST. 9.8236

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 0.99400)				
501	VOCABULARY	1.5221	0.2552	0.14936	103.8557
A305	#RT:SAT TOTAL	0.7172	0.6932	0.02591	766.1338

Text and Socio-economic Comparisons

Analyses of Variance for End-of-Third-Grade Scales

The results of the analyses of variance for the end-of-third-grade scales are given in Tables 5.4A and 5.4B. Significant overall socio-economic effects were found for all scales, and in the pairwise comparison of the two socio-economic levels separately in each curriculum a significantly higher score was obtained by the middle groups for every scale.

A significant overall text effect was found for Number Line (703), Structure of Space (706), Computation - Multiplication (709), Computation (727), and Structure (728). For the latter, Structure, there was also a significant interaction effect. The effect of the curricula was different for the two socio-economic levels. For Number Line (703) and Structure of Space (706), the SMSG group achieved higher scores only in the case of the middle groups. For Computation - Multiplication (709) and Structure (728), on the other hand, it was the State group that excelled, but only for the low groups. The trend for Computation (727) in the low group text comparison was in the same direction as was obtained for Computation - Multiplication and Structure, but a significant F-value was not reached.

Analyses of Covariance for End-of-Third-Grade Scales

The results of the covariance analyses are given in Tables 5.5A and 5.5B. (Correlation matrices for each cell are given in Table A5.2 and regression weights in Table A5.3.) Most of the socio-economic effects that had been found in the analyses of variance in Table 5.4B disappeared when performance at the end of second grade was considered. (There was, however, heterogeneity of regression for scales 704 and 709.) Overall differences between socio-economic levels still remained for Place Value (702), Computation - Multiplication (709), Computation (727) and Structure (728). In the pairwise comparison for the groups following the State curriculum, the only significant difference was found for Computation - Subtraction (708). The middle group differed significantly from the low group in the SMSG curriculum on Place Value, Computation - Multiplication and Structure. (Heterogeneity of regression was significant for scale 709.)

Taking account of performance at the end of second grade by analyses of covariance gave different results for text effects than had been obtained in the analyses of variance for the third grade scales. Text effects were still found for Structure of Space (706) and Structure (728), but not for the other scales for which significant text effects had been found in the analyses of

Table 5.4A

Cell Means and Standard Deviations
of End-of-Third-Grade Scales
Selected Sample

Scales	SMSG Low S.E. A1		SMSG Mid. S.E. B1		State Low S.E. C1		State Mid. S.E. D1	
	MN	SD	MN	SD	MN	SD	MN	SD
Math Scales								
No. Compare 701	4.12	1.76	4.63	1.42	4.58	1.81	5.42	1.66
Place Value 702	2.91	1.96	5.43	1.86	3.26	2.13	5.21	1.77
No. Line 703	3.42	1.08	4.24	1.32	3.26	1.16	3.82	1.29
Application 704	4.19	2.03	5.85	1.95	4.12	1.89	5.77	2.12
Rationals 705	3.28	1.48	4.82	1.70	3.59	1.63	5.05	1.82
Struct Space 706	3.88	1.37	5.16	1.53	3.62	1.56	4.33	1.55
Compute-Add 707	4.44	2.49	6.43	1.83	4.44	2.56	6.16	1.82
Compute-Sub 708	3.38	2.28	5.33	2.10	3.01	2.15	5.23	1.80
Compute-Mult 709	3.24	2.51	5.97	1.75	4.07	2.61	6.10	1.66
Computation 727	4.23	3.14	7.45	2.90	4.95	3.36	8.09	3.16
Structure 728	0.93	1.39	3.79	1.88	2.07	1.96	3.59	1.97
SAT Scale								
SAT Read-Tot #Rt A405	52.63	21.19	70.20	15.85	51.34	19.10	71.71	15.10

$422 \leq N \leq 448$

Note: Means obtained from analysis of variance program.

Standard deviations obtained from heterogeneity of regression program.

Table 5.4B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-Third-Grade Scales
Selected Sample

Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales							
No. Compare 701	51.86*	0.62	4.17*	4.73*	0.68	48.57*	11.88*
Place Value 702	134.88*	0.11	2.20	1.93	0.58	97.49*	45.81*
No. Line 703	34.97*	6.09*	1.26	1.07	5.59*	28.13*	10.25*
Application 704	75.86*	0.17	0.00	0.08	0.09	43.62*	33 46*
Rationals 705	89.85*	2.90	0.06	2.22	0.93	53.67*	38.11*
Struct Space 706	46.34*	13.99*	3.82	1.88	14.07*	43.65*	10.51*
Compute-Add 707	71.61*	0.35	0.37	0.00	0.62	46.78*	27.52*
Compute-Sub 708	99.70*	1.26	0.43	1.85	0.10	49.52*	50.49*
Compute-Mult 709	115.96*	4.77*	2.57	8.46*	0.15	87.01*	37.49*
Computation 727	101.60*	4.67*	0.02	3.08	1.79	59.00*	44.31*
Structure 728	144.93*	6.66*	13.44*	22.63*	0.52	139.29*	31.44*
SAT Scale							
SAT Read-Tot #Rt A405	110.65*	0.00	0.60	0.30	0.31	54.24*	56.70*

$422 \leq N \leq 448$

*$p \leq .05$

Table 5.5A

Cell Means Adjusted by Analysis of Covariance
for End-of-Third-Grade Scales
Using End-of-Second-Grade Scales as Covariates
Selected Sample

Scales	SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
	ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Math Scales				
No. Compare 701	4.68	4.93	5.01	4.71
Place Value 702	3.67	4.58	3.88	4.09
No. Line 703	3.62	3.88	3.51	3.57
Application 704	4.96	4.94	4.71	4.86
Rationals 705	3.93	4.28	4.04	4.32
Struct Space 706	4.29	4.70	4.00	3.89
Compute-Add 707	5.45	5.56	4.89	5.31
Compute-Sub 708	4.38	4.43	3.62	4.21
Compute-Mult 709	4.30	5.01	4.67	5.15
Computation 727	5.52	6.13	6.01	6.56
Structure 728	1.65	3.04	2.67	2.73
SAT Scale				
SAT Read-Tot #Rt A405	59.26	61.98	59.51	60.94
Sample Sizes)	($98 \leq N \leq 115$)	($113 \leq N \leq 123$)	($127 \leq N \leq 133$)	($62 \leq N \leq 70$)

N = 82 for Scale 705 in Cell A1.

Table 5.5B

Analyses of Covariance Comparing Text and Socio-economic Effects for End-of-Third-Grade Scales Using End-of-Second-Grade Scales as Covariates Selected Sample

Scales	F-Values							Heterogeneity of Regression	
	Overall Effects			Pairwise Comparisons					
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales									
No. Compare 701	0.02	0.16	4.16*	3.50	1.18	1.58	1.02	1.15	.319
Place Value 702	6.94*	2.44	2.75	0.01	4.61*	10.56*	0.78	0.65	.836
No. Line 703	1.53	3.44	0.78	0.60	3.17	2.60	0.12	0.82	.596
Application 704	0.14	1.31	0.39	1.84	0.12	0.02	0.43	1.77*	.050*
Rationals 705	2.96	0.23	0.05	0.27	0.03	2.22	1.36	1.65	.076
Struct Space 706	0.81	17.04*	3.80	2.76	16.01*	4.24*	0.29	1.24	.269
Compute-Add 707	1.64	4.89*	0.70	5.21*	0.84	0.19	2.08	0.94	.512
Compute-Sub 708	3.05	9.16*	2.83	12.52*	0.80	0.05	5.34*	0.97	.482
Compute-Mult 709	8.35*	2.20	0.46	2.65	0.29	7.51*	2.86	2.82*	.001*
Computation 727	4.02*	3.47	0.02	2.29	1.37	2.91	1.89	0.91	.533
Structure 728	15.34*	5.28*	18.12*	25.09*	1.73	36.31*	0.06	1.29	.223
SAT Scale									
SAT Read-Tot #Rt A405	3.36	0.16	0.42	0.04	0.49	3.77	0.80	2.10	.053

$393 \leq N \leq 441$

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

variance. (For Structure of Space (706), the Middle-SMSG group did better than the Middle-State group, while for the scale measuring structure of arithmetic, Structure (728), the Low-State group surpassed the Low-SMSG group.)

Although there had been no significant text effects for Computation - Addition (707) and Computation - Subtraction (708) in the analyses of variance, there was a significant effect for these scales when adjustment was made for covariates from second grade. The Low-SMSG group now had significantly higher adjusted scores on the addition and subtraction scales than the Low-State group. It seems that during the third grade the Low-SMSG group made enough progress to catch up with the Low-State group in addition and subtraction but still did not do as well as the Low-State group in multiplication. (See Table 4.5 in Chapter 4 for the results of the analyses of variance for second grade showing that the Low-State group achieved higher scores on computation scales.)

Summary of Cell Comparisons on End-of-Third-Grade Scales

The middle socio-economic groups surpassed the low groups on all scales, but many of the differences could be attributed to better performances on mathematics scales at the end of second grade. This was especially true for the State groups for which only one significant difference between the two socio-economic levels was found in the analyses of covariance.

For most of the scales, the two curricula gave essentially the same results. In cases where text effects appeared, they were found for only one of the two socio-economic levels. The greater emphasis on geometry in the SMSG curriculum resulted in better performance on the geometry scale, Structure of Space, for the middle group. For Structure, a scale designed to measure understanding of the basic properties of operations with whole numbers, the State group surpassed the SMSG group in the case of the low socio-economic groups.

For the scales, Computation - Addition and Computation - Subtraction, the Low-SMSG group made gains during the third grade so that it no longer performed at a lower level than the State group as had been the case at the end of second grade. Computation - Multiplication still distinguished the two curricula at the low socio-economic level. It seems from these results, and those discussed for the preceding years, that for the low socio-economic groups students using the State curriculum achieved a higher level on computation in a shorter time than did those using the SMSG curriculum, but that the difference between the curricula disappeared at a later time. Possibly by the end of fourth grade or fifth grade differences in multiplication would no longer be found.

Chapter 6

SOCIO-ECONOMIC AND TEXT COMPARISONS BY ANALYSES OF VARIANCE FOR LONGITUDINAL SAMPLE FOR EACH YEAR FROM KINDERGARTEN TO THIRD GRADE

All of the analyses of text and socio-economic effects that have been discussed up to now use the selected sample consisting of all students in those schools that were included in the comparisons of curricula and socio-economic level. (See Chapter 1 for a description of the schools used for cell comparisons.) The selected sample differs somewhat in each year of the study because of students dropping out of school each year and because of the new sample of students added at the end of first grade. To obtain information about mathematics achievement in the grades from kindergarten through third grade on a constant sample, the analyses of variance for socio-economic and text effects were repeated for the sample of students who were present from the beginning of kindergarten to the end of third grade. This sample will be referred to as the longitudinal sample.

Text and socio-economic comparisons for the longitudinal sample using analyses of variance will be presented for each year and the results will be compared with those for the selected sample discussed previously.

Analyses of Variance for Mathematics Scales Given at the Beginning-of-Kindergarten

The results of the analyses of variance for the scales from the mathematics inventory given at the beginning of kindergarten (K-01) in the longitudinal sample are given in Table 6.1A (means and standard deviations) and in Table 6.1B (F-values). The same general results were found for the longitudinal sample as had been found for the selected sample (see Tables 2.9A and 2.9B in Chapter 2 for the analyses of variance for the selected sample). The size of the longitudinal sample is slightly less than half the size of the selected sample used for the analysis of kindergarten scales in Chapter 2. As had been the case for the selected sample (Table 2.9B), socio-economic effects were significant for almost all scales for the longitudinal sample (Tables 6.1A and 6.1B), while there were almost no differences between the groups assigned to the different curricula. The only exception to this general pattern occurred in the longitudinal sample for the visual memory scales and the geometry scales dealing with color and shapes. For the geometry scales there was again a tendency for the Low-SMSG group to achieve a higher level of performance than the

Table 6.1A

Cell Means and Standard Deviations
of Beginning-of-Kindergarten Scales
Longitudinal Sample

K-01 Scales	SMSG-Low A1		SMSG-Mid. B1		State-Low C1		State-Mid. D1	
	MN	SD	MN	SD	MN	SD	MN	SD
Geom Shape: Match 001	3.89	0.45	3.84	0.56	3.72	0.73	3.80	0.71
Geom Shape: Name 002	2.02	1.25	1.64	0.99	1.30	1.19	1.64	1.17
Geom Shape: Ident 003	2.66	1.30	2.71	1.18	1.91	1.28	2.73	1.22
Count Buttons 004	3.95	2.49	5.40	1.97	3.40	2.68	5.31	2.23
Write Numerals 005	0.82	1.64	1.53	2.38	0.83	1.82	1.00	1.81
Count Set PC 006	3.15	2.75	5.21	2.56	2.98	2.87	4.81	2.76
Ident Numerals 007	3.71	2.99	5.61	2.92	3.42	2.90	5.24	2.71
Vis Mem Obj 008	3.53	1.26	3.57	1.21	3.36	1.17	3.02	1.11
Vocabulary 010	14.31	2.66	15.79	2.76	13.98	3.54	15.71	2.82
Equiv Sets: Dots 012	2.86	2.19	3.87	1.86	2.45	2.17	4.25	1.81
Ordinal No. 013	3.19	1.52	4.14	1.50	3.18	1.61	4.36	2.01
Order Geom Shapes 014	0.61	0.74	1.12	0.90	0.66	0.84	0.98	0.90
Classify 015	3.86	1.84	4.84	1.89	3.89	2.09	4.88	1.90
Rote Count 016	1.56	1.50	1.82	1.83	1.25	1.22	2.02	2.16
Vis Mem Pict 017	1.26	1.14	1.34	1.05	0.92	0.96	1.14	1.07
Color Match 019	5.81	0.58	5.93	0.32	5.93	0.32	5.88	0.46
Color Name 020	5.81	1.68	6.48	1.20	5.23	2.20	6.47	1.26
Color Ident 021	5.24	1.37	5.72	0.99	4.66	2.01	5.63	1.08
Resp Verb Dir 022	3.67	0.55	3.75	0.48	3.56	0.64	3.86	0.43
Attn to Tasks 023	1.43	0.73	1.70	1.00	1.53	0.80	1.58	0.93
(Sample Sizes)	($92 \leq N \leq 99$)		($90 \leq N \leq 92$)		($100 \leq N \leq 103$)		($56 \leq N \leq 59$)	

Table 6.1B

Analyses of Variance
Comparing Text and Socio-economic Effects
for Beginning-of-Kindergarten Scales
Longitudinal Sample

Math Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Geom Shape: Match 001	0.04	2.45	0.93	3.86*	0.15	0.34	0.60
Geom Shape: Name 002	0.02	7.89*	7.82*	18.76*	0.00	4.87*	3.17
Geom Shape: Ident 003	10.06*	7.25*	7.84*	18.07*	0.00	0.08	15.98*
Count Buttons 004	41.73*	1.55	0.76	2.70	0.06	17.72*	24.02*
Write Numerals 005	4.43*	1.55	1.63	0.00	2.72	6.50*	0.31
Count Set PC 006	42.33*	0.89	0.14	0.20	0.74	26.86*	16.81*
Ident Numerals 007	34.49*	1.09	0.02	0.50	0.59	20.46*	14.74*
Vis Mem Obj 008	1.37	7.40*	2.18	0.93	7.55*	0.05	3.12
Vocabulary 010	24.38*	0.41	0.15	0.63	0.03	11.76*	12.66*
Equiv Sets: Dots 012	40.01*	0.00	3.20	2.06	1.28	11.69*	29.40*
Ordinal No. 013	35.38*	0.34	0.39	0.00	0.62	16.10*	19.29*
Order Geom Shapes 014	20.89*	0.20	1.09	0.21	0.95	17.88*	5.56*
Classify 015	21.62*	0.03	0.00	0.02	0.02	12.16*	9.75*
Rote Count 016	8.01*	0.09	2.01	1.76	0.54	1.13	8.08*
Vis Mem Pict 017	1.71	5.49*	0.29	4.99*	1.40	0.34	1.53
Color Match 019	0.64	0.56	3.51	4.12*	0.55	4.07*	0.51
Color Name 020	26.93*	2.45	2.38	5.79*	0.00	7.53*	20.30*
Color Ident 021	20.21*	4.40*	2.35	7.92*	0.14	4.98*	16.24*
Resp Verb Dir 022	10.28*	0.01	3.43	1.82	1.65	1.04	11.46*
Attn to Tasks 023	2.72	0.02	1.44	0.67	0.77	4.60*	0.09

$338 \leq N \leq 353$

*$p \leq .05$

Low-State group. For one scale, Geometric Shapes - Naming (002), the Low-SMSG group even surpassed the Middle-SMSG group. The text difference found previously for Rote Counting (016) in the selected sample was no longer found in the longitudinal sample. Since the visual memory scales (008 and 017) and the two matching scales (001 and 019) were poor scales, no further discussion will be made of these. (The visual memory scales had low values for Cronbach's alpha, while the matching scales had means which were very close to the maximum scale score.)

In all analyses of end-of-kindergarten scales, it was necessary to omit some students who were exposed to both texts in kindergarten. The analyses of beginning-of-kindergarten scales were therefore repeated omitting a group of 14 students in the Middle-State group. (The students were in school number 17.) The results were very similar to those shown in Table 6.1B, with these students included; the only change of any importance that occurred was for Color - Identifying (021) which no longer showed significant text effects. The tables for the analyses (with some students in the Middle-State group omitted) are given in the Appendix in Tables A6.1A and A6.1B.

Analyses of Variance for WPPSI Scales (Kindergarten)

The results of the analysis of variance for WPPSI scales in Tables 6.2A and 6.2B show that there was a significant overall socio-economic effect for all scales and that there was no difference between the text groups except in the case of Similarities (M114). For Similarities there were significant socio-economic and text effects, and a significant interaction, with the Middle-State group obtaining the higher scores in the pairwise comparisons.

These results (in Tables 6.2A and 6.2B) were essentially the same as those obtained for the selected sample (see Tables 2.10A and 2.10B) except for some differences for Similarities. Analyses of variance for WPPSI scales were also done deleting the 14 students in the Middle-State group that were to be excluded from all text and socio-economic comparisons for the end-of-kindergarten scales. These results are given in Tables A6.2A and A6.2B in the Appendix. The results were almost identical to those obtained when all the longitudinal students were included in the sample, except that there was no significant overall text effect or interaction effect for Similarities. (The results of the analyses of variance for WPPSI scales for the selected sample, shown in Tables 2.10A and 2.10B, omitted students that were omitted in the end-of-kindergarten analyses.)

Table 6.2A

Cell Means and Standard Deviations
of WPPSI Scales
Longitudinal Sample

WPPSI Scales		SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
Vocabulary	M112	8.70	2.49	11.04	2.77	8.97	2.56	10.91	2.50
Similarities	M114	9.80	2.86	10.39	2.57	9.79	2.64	11.60	2.57
Pict Compl	M117	9.12	2.66	10.55	2.62	9.20	2.48	10.64	2.58
Block Design	M120	9.65	2.60	11.20	2.52	10.17	2.49	11.34	2.26
Total	M123	37.28	7.93	43.19	6.86	38.13	6.29	44.50	6.17

N = 345

Table 6.2B

Analyses of Variance
Comparing Text and Socio-economic Effects
for WPPSI Scales
Longitudinal Sample

WPPSI Scales		F-Values						
		Overall Effects			Pairwise Comparison			
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Vocabulary	M112	56.31*	0.06	0.48	0.52	0.09	38.16*	20.71*
Similarities	M114	16.27*	4.06*	4.14*	0.00	7.01*	2.27	16.46*
Pict Compl	M117	25.21*	0.08	0.00	0.04	0.04	14.22*	11.34*
Block Design	M120	24.54*	1.44	0.46	2.13	0.11	18.02*	8.16*
Total	M123	64.68*	2.01	0.09	0.75	1.26	34.05*	31.08*

N = 345

*$p \leq .05$

Analyses of Variance for End-of-Kindergarten Common Scales

The results of analyses of variance for the end-of-kindergarten common scales for the longitudinal sample are shown in Tables 6.3A and 6.3B. The 14 students in the Middle-State cell (in school 17) who had been exposed to both curricula were omitted from this analysis. For the longitudinal sample, no cell comparisons were made for the end-of-kindergarten subpopulation scales because the sample sizes for the cells became too small. The middle groups performed significantly better than the low groups on all mathematics scales given at the end of the kindergarten year, just as they had at the beginning of the year. The same results had been found for the selected sample, as shown previously in Tables 2.11A and 2.11B. In the socio-economic pairwise comparisons for the longitudinal sample shown in Table 6.3B, it was found, however, that this general result did not hold for the State group for Counting Members of a Given Set - Picture Cards (110), Counting Members of a Given Set - Objects (111) and Equivalent Sets - Dots (119). (The scales for counting sets and forming equivalent sets had been the principal scales on the general mathematics factor for the end-of-kindergarten scales.[16]) In the study of the selected sample, significant differences in the socio-economic pairwise comparison had been found for students using the State curriculum for both of the equivalent sets scales. Also, in the selected sample the pairwise comparisons had shown significant socio-economic effects in both curricula for Geometric Shapes - Identifying (104), while in the longitudinal sample there had been no significant pairwise effects here.

As shown in Table 6.3B, no significant overall text effect was found for any of the mathematics scales for the longitudinal sample. However, one significant difference, favoring the State group, was found in the pairwise comparison for the Low groups for Classifying S-2 (130); but this scale has little relation to other mathematics scales. In the selected sample, significant text effects had been shown in Table 2.11B for Counting Members of a Given Set - Picture Cards (110), Equivalent Sets - Dots (119), and Classifying S-2 (130), with all differences in favor of the Low-State group as compared with the Low-SMSG group.

For the scales of the Metropolitan Readiness Test (MRT), significant overall effects were found not only for the socio-economic factor but also for the text factor (see Table 6.3B). Overall effects were significant for both text

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[16] For the results of the factor analyses see ELMA Report No. 1, A Longitudinal Study of Mathematical Achievement in the Primary School Years, Description of Design, Sample, and Factor Analyses of Tests. Stanford: School Mathematics Study Group, Stanford University,

Table 6.3A

Cell Means and Standard Deviations
of End-of-Kindergarten Common Scales
Longitudinal Sample

Scales		SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
Math Scales									
Geom Shape: Ident	104	4.42	0.94	4.58	0.81	4.49	0.88	4.73	0.65
Count Set PC	110	5.88	2.93	7.50	2.09	6.48	3.10	7.36	2.18
Count Set: Obj	111	7.06	2.91	8.09	1.83	7.51	2.81	7.73	2.22
Equiv Sets: Obj	118	4.08	2.08	4.91	1.42	4.11	2.17	4.89	1.56
Equiv Sets: Dots	119	4.51	1.81	5.39	0.97	4.81	1.48	5.29	1.16
Classify S-2	130	4.78	1.39	5.82	0.51	5.14	1.08	5.78	0.56
Order Comp	147	4.77	3.53	7.59	2.82	4.55	3.89	8.29	1.87
WPPSI Scales									
Vocabulary	M112	8.70	2.49	11.04	2.77	8.97	2.56	10.91	2.49
Similarities	M114	9.80	2.86	10.39	2.57	9.79	2.64	11.57	2.61
Pict Compl	M117	9.12	2.66	10.55	2.62	9.20	2.48	11.23	2.37
Block Design	M120	9.65	2.60	11.20	2.52	10.17	2.49	11.27	2.25
Total	M123	37.28	7.93	43.19	6.86	38.13	6.29	44.98	5.43
MRT Scales									
Word Mean	R201	8.10	2.64	10.25	2.40	8.71	2.82	11.53	2.47
Listen	R202	10.11	2.57	11.12	2.35	9.83	2.79	12.60	2.46
Match	R203	8.12	3.36	10.16	2.65	8.51	3.30	10.60	2.21
Alphabet	R204	10.51	4.19	12.23	3.50	12.94	3.42	13.70	2.50
Numbers	R205	11.83	3.88	14.46	3.35	12.80	3.77	15.65	3.27
Copy	R206	4.80	2.22	5.77	2.28	5.56	2.58	6.30	2.10

N = 335

Note: Means obtained from analysis of variance program.

Standard deviations obtained from heterogeneity of regression program.

Table 6.3B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-Kindergarten Common Scales
Longitudinal Sample

Scales		F-Values						
		Overall Effects			Pairwise Comparisons			
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales								
Geom Shape: Ident	104	4.12*	1.31	0.18	0.35	0.98	1.62	2.50
Count Set PC	110	16.08*	0.54	1.44	2.50	0.09	16.98*	3.29
Count Set: Obj	111	4.50*	0.02	1.86	1.54	0.58	7.60*	0.24
Equiv Sets: Obj	118	13.63*	0.00	0.01	0.01	0.00	9.05*	5.34*
Equiv Sets: Dots	119	16.71*	0.38	1.48	2.24	0.15	17.62*	3.43
Classify S-2	130	51.64*	1.83	2.99	6.33*	0.06	49.74*	12.40*
Order Comp	147	74.26*	0.40	1.45	0.21	1.35	34.39*	40.16*
WPPSI Scales								
Vocabulary	M112	50.38*	0.05	0.44	0.52	0.08	38.08*	17.12*
Similarities	M114	14.09*	3.41	3.48	0.00	5.50*	2.25	13.06*
Pict Compl	M117	33.61*	1.60	1.01	0.05	2.06	14.51*	19.15*
Block Design	M120	20.78*	1.02	0.59	2.12	0.02	17.91*	5.95*
Total	M123	63.68*	2.73	0.34	0.77	1.99	34.56*	30.34*
MRT Scales								
Word Mean	R201	64.09*	9.31*	1.15	2.60	6.82*	29.89*	34.45*
Listen	R202	38.41*	3.89*	8.30*	0.55	9.45*	6.87*	34.35*
Match	R203	32.85*	1.36	0.01	0.79	0.62	20.03*	14.03*
Alphabet	R204	8.46*	20.85*	1.26	21.43*	4.76*	10.15*	1.33
Numbers	R205	40.23*	6.24*	0.07	3.31	3.06	23.04*	18.21*
Copy	R206	9.54*	5.42*	0.17	4.98*	1.47	7.66*	2.98

N = 335

*$p \leq .05$

and socio-economic level for all scales, with the only exception being the text effect for Matching (R203). Again, this pattern is essentially the same as that found for the selected sample (Table 2.11B) except that for the selected sample there had been no significant text effect for Listening (R202).

For Numbers (R205) the State groups achieved higher average scores both in the low socio-economic group comparison and the middle socio-economic group comparison, but the F-values in these pairwise comparisons did not reach significance. For the selected sample the low group text comparison had reached significance. In both the State and SMSG curricula the middle socio-economic groups had a significantly higher score on Numbers than the low groups.

Significant socio-economic effects were also found in three of the other MRT scales for the longitudinal sample, as they had been in the selected sample, but the F-value for Copying (R206) did not quite reach significance for the longitudinal sample. Text effects were generally found only at one of the socio-economic levels in the pairwise comparisons and occurred in different patterns than had been found in the selected sample. All differences that occurred favored the State group.

Summary of Comparisons of End-of-Kindergarten Common Scales by Analyses of Variance

Overall differences between socio-economic groups were found for all mathematics scales and MRT scales. In the socio-economic pairwise comparisons, significant differences appeared in the SMSG groups for all scales except the geometry scales; but in the State groups these differences failed to reach significance for a number of scales.

The two curricula did not result in differences in the mathematics scales except in one pairwise comparison, but there were differences on all but one of the MRT scales. The State groups were better on Numbers at both socio-economic levels, though the F-values did not quite reach significance, and they performed significantly better on Alphabet (R204). The remaining significant differences were found at only one level in the pairwise comparisons.

Analyses of Variance for Scales Given at the End of First Grade

The results of the analyses of variance for end-of-first-grade scales for the longitudinal sample are shown in Tables 6.4A and 6.4B. Significant overall socio-economic effects were found for all first grade scales except the geometry scales, just as they had been for the end-of-kindergarten analyses. In the analyses of variance for the first grade scales the effects now occurred in both curricula rather than being confined mostly to the SMSG groups as had been true in kindergarten. These results for the socio-economic effects are

Table 6.4A

Cell Means and Standard Deviations
of End-of-First-Grade Scales
Longitudinal Sample

Scales		SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
Math Scales									
Place Value	306	3.87	1.91	5.58	1.72	3.85	1.80	5.67	1.63
No. Compare	307	4.78	1.50	5.86	1.15	4.80	1.54	5.80	1.33
No. Line	308	3.06	1.23	3.98	0.97	2.52	1.22	3.65	1.05
Application	309	3.64	1.40	4.71	1.46	3.63	1.54	4.81	1.81
Compute-Add	311	6.00	2.65	8.07	1.70	6.72	2.10	8.24	1.09
Compute-Subtract	312	3.10	2.99	6.07	2.81	4.51	3.12	6.63	2.10
Compute-Mult	313	0.15	0.50	0.76	0.87	0.15	0.48	0.48	0.79
Ident Triangle	321	5.48	1.30	4.93	1.81	4.35	1.96	4.59	1.99
Ident Rectang	322	2.91	1.18	3.02	1.18	2.20	1.53	2.39	1.37
Curved Figure	323	3.11	1.40	3.60	1.41	3.31	1.59	3.37	1.48
Comprehend-Gp	328	1.65	0.99	2.26	1.12	1.45	1.00	2.11	1.21
Comprehend-Ind	329	1.59	1.22	3.07	0.91	2.17	1.28	2.55	1.08
Raven Scales									
Raven Set A	M201	7.39	1.26	7.90	1.47	7.01	1.41	8.02	1.36
Raven Set Ab	M202	4.41	1.73	5.81	1.92	4.45	2.05	5.70	2.18
Raven Set B	M203	3.27	1.33	4.59	1.67	3.63	1.71	4.36	1.59
Raven-Total	M204	15.07	3.21	18.30	3.78	15.09	4.08	18.09	4.28
SAT Scale									
SAT Word #Rt	A209	35.53	13.60	45.10	15.81	36.38	15.44	46.26	16.25
Kuhlmann-Anderson									
IQ: Kuhl-Andr	M324	109.22	13.81	112.71	13.14	104.43	13.19	112.45	11.06

$331 \leq N \leq 348$

Note: Means obtained from analysis of variance program.

Standard deviations obtained from heterogeneity of regression program.

Table 6.4B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-First-Grade Scales
Longitudinal Sample

Scales		F-Values						
		Overall Effects			Pairwise Comparisons			
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales								
Place Value	306	77.14*	0.03	0.07	0.01	0.08	42.55*	35.69*
No. Compare	307	44.10*	0.02	0.06	0.01	0.06	27.92*	17.75*
No. Line	308	63.03*	11.49*	0.69	10.96*	2.76	29.27*	33.82*
Application	309	43.88*	0.09	0.12	0.00	0.17	23.14*	21.16*
Compute-Add	311	58.77*	3.61	1.34	5.75*	0.23	45.06*	18.65*
Compute-Subtract	312	61.14*	9.17*	1.68	11.53*	1.26	48.10*	18.72*
Compute-Mult	313	42.31*	3.53	3.60	0.00	6.00*	40.86*	9.34*
Ident Triangle	321	0.65	14.52*	4.19*	21.16*	1.31	4.79*	0.67
Ident Rectang	322	0.99	19.82*	0.06	13.60*	7.44*	0.33	0.67
Curved Figure	323	2.81	0.01	1.76	0.95	0.84	5.29*	0.05
Comprehend-Gp	328	29.54*	2.33	0.06	1.93	0.69	15.81*	14.05*
Comprehend-Ind	329	51.35*	0.05	17.94*	12.30*	6.75*	75.47*	3.77
Raven Scales								
Raven Set A	M201	22.53*	0.67	2.49	3.70	0.24	6.11*	16.96*
Raven Set Ab	M202	33.92*	0.03	0.10	0.02	0.09	22.98*	12.85*
Raven Set B	M203	32.45*	0.14	2.69	2.62	0.65	32.80*	6.98*
Raven-Total	M204	50.01*	0.05	0.07	0.00	0.10	32.78*	19.66*
SAT Scale								
SAT Read-Tot #Rt	A209	33.75*	0.36	0.01	0.15	0.21	18.57*	15.55*
Kuhlmann-Anderson								
IQ: Kuhl-Ander	M324	15.65*	3.02	2.44	6.45*	0.01	3.24	13.64*

$331 \leq N \leq 348$

* $p \leq .05$

essentially the same as had been found for the selected sample (see Tables 3.4A and 3.4B).

Whereas in kindergarten the only scale measuring mathematics that showed text effects was Numbers (R205), there were now some mathematics scales that differentiated the two text groups. For the Low groups, the State curriculum resulted in better performance on Computation - Addition (311) and Computation - Subtraction (312), while the SMSG curriculum resulted in better scores on Number Line (308) and on the geometry scales, Identifying Triangles (321) and Identifying Rectangles (322). For the middle groups, the SMSG curriculum resulted in higher scores for Identifying Rectangles (322) and for Computation - Multiplication (313). As was the case for the socio-economic effects, the results for the selected sample (Tables 3.4A and 3.4B) corresponded quite closely to those discussed here.

Analysis of Variance for End-of-Second-Grade Scales

Tables 6.5A and 6.5B, which give the results for the analyses of variance for the end-of-second-grade scales, show a pattern similar to that found for the first grade scales in Tables 6.4A and 6.4B. Significant socio-economic effects, both in overall and in pairwise comparisons, were found for all scales with the exception of two geometry scales. (Counting (509) has such low value for Cronbach's alpha that it will not be discussed here.) At the end of first grade (see Tables 6.4A and 6.4B), the geometry scales had been the only ones for which no socio-economic differences had appeared. Socio-economic effects for the analyses of variance of second grade scales in the selected sample, shown in Table 4.5B, were essentially the same as for the longitudinal sample.

Again, as had been the case for the first grade scales, significant text effects were found for scales measuring ability to use a number line and scales measuring computation and geometry. For Number Line (505) it was now the pairwise comparison for the middle groups that showed the text effects in favor of the SMSG group, rather than the pairwise comparison for the low groups, as had occurred in first grade. In the pairwise text comparisons within the low groups, significant differences in favor of the Low-State group occurred in all three computation scales. In the first grade, the Low-State group had obtained higher scores than the Low-SMSG group for addition and subtraction, but for multiplication there had been a text difference only for the middle groups on which the SMSG group performed better.

For the selected sample (the results were given previously in Tables 4.5A and 4.5B), there had been several additional significant text differences. In the selected sample, significant text differences for Number Line (505) and

Table 6.5A

Cell Means and Standard Deviations
of End-of-Second-Grade Scales
Longitudinal Sample

Scales		SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
		MN	SD	MN	SD	MN	SD	MN	SD
Math Scales									
Vocabulary-Gp	501	16.50	3.21	19.04	2.35	16.21	3.39	19.37	2.49
Comprehension-Gp	502	3.84	1.77	5.28	1.71	4.25	1.95	5.36	1.65
No. Compare	503	4.42	1.99	6.27	1.28	4.44	1.81	6.20	1.46
Place Value	504	2.67	1.92	4.80	1.86	3.00	2.12	4.78	1.78
No. Line	505	3.54	1.22	4.46	1.26	3.28	1.28	3.79	1.34
Application	506	3.99	1.72	5.60	1.64	4.42	1.78	5.55	1.70
Rationals	507	3.36	1.43	3.92	1.50	3.15	1.48	4.60	1.60
Order Sets PC-Gp	508	0.99	1.13	2.02	1.10	1.30	1.16	2.03	0.99
Counting	509	1.81	0.48	1.77	0.47	1.73	0.49	1.88	0.32
Compute-Add	510	3.87	2.09	6.21	1.42	5.30	2.06	6.27	1.74
Compute-Subtract	511	3.20	2.07	5.20	1.73	4.11	2.20	5.77	1.61
Compute-Mult	512	0.85	1.69	3.82	2.41	1.47	1.89	3.57	2.54
Ident Polygons	521	2.29	2.50	3.26	3.31	1.82	1.61	0.80	0.91
Curved/Open Fig.	522	5.60	1.64	6.29	1.11	6.23	1.28	6.57	0.81
Ident Triangle	523	4.62	2.02	5.22	1.62	4.27	1.95	4.54	1.57
Congruence	524	3.53	0.92	3.44	1.00	3.63	0.73	3.59	1.15
Similarity	525	0.64	0.75	0.90	0.93	0.42	0.63	0.54	0.78
WISC Scales									
WISC Vocabulary	M305	9.59	2.42	12.78	2.86	9.32	2.91	13.21	3.38
WISC Simil	M306	10.49	2.59	12.93	3.38	10.55	3.01	12.59	2.82
WISC Pict Compl	M307	9.41	2.37	11.40	2.69	9.50	2.68	10.47	2.49
WISC Block Des	M308	9.80	2.29	12.24	3.02	10.07	2.76	12.40	2.48
WISC Total	M311	39.29	6.46	49.36	8.81	39.44	7.39	48.66	7.66
SAT Scale									
SAT Read-Tot #Rt	A305	40.54	17.89	55.31	17.54	38.87	17.26	57.96	17.88

$341 \leq N \leq 352$, except for Scale 507, where $N = 325$.

Note: Means obtained from analysis of variance program.

Standard deviations obtained from heterogeneity of regression program.

Table 6.5B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-Second-Grade Scales
Longitudinal Sample

Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E. Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales							
Vocabulary-Gp 501	79.53*	0.00	0.93	0.48	0.46	35.83*	43.70*
Comprehension-Gp 502	44.08*	1.62	0.79	2.81	0.06	32.11*	14.79*
No. Compare 503	96.60*	0.02	0.06	0.01	0.06	57.36*	41.19*
Place Value 504	83.51*	0.49	0.68	1.41	0.01	56.38*	30.86*
No. Line 505	26.45*	11.10*	2.16	2.10	9.83*	24.83*	6.03*
Application 506	54.19*	1.01	1.65	3.17	0.03	42.47*	16.48*
Rationals 507	36.31*	1.96	7.03*	0.87	7.50*	5.95*	36.06*
Order Sets PC-Gp 508	52.04*	1.75	1.49	3.91*	0.00	40.40*	16.04*
Counting 509	1.30	0.10	3.53	1.47	2.06	0.31	4.07*
Compute-Add 510	64.90*	13.28*	11.26*	29.99*	0.04	75.26*	9.74*
Compute-Subtract 511	72.20*	11.77*	0.61	10.86*	2.97	49.74*	26.24*
Compute-Mult 512	120.19*	0.64	3.57	4.42*	0.50	95.46*	36.28*
Ident Polygons 521	0.01	31.32*	14.46*	1.97	37.32*	7.95*	6.69*
Curved/Open Fig. 522	12.53*	9.79*	1.38	11.34*	1.61	12.85*	2.46
Ident Triangle 523	4.63*	6.52*	0.73	1.77	4.90*	5.22*	0.74
Congruence 524	0.36	1.49	0.05	0.60	0.89	0.40	0.06
Similarity 525	4.87*	11.43*	0.77	3.84	7.66*	5.50*	0.78
WISC Scales							
WISC Vocabulary M305	128.76*	0.07	1.24	0.44	0.80	59.45*	69.37*
WISC Simil M306	47.62*	0.02	0.39	0.20	0.49	32.16*	17.59*
WISC Pict Compl M307	28.51*	2.38	3.36	0.05	4.84*	29.22*	5.49*
WISC Block Des M308	65.60*	0.51	0.04	0.51	0.11	39.10*	27.88*
WISC Total M311	132.57*	0.11	0.25	0.02	0.30	81.99*	54.15*
SAT Scale							
SAT Read-Tot #Rt A305	75.11*	0.06	1.23	0.43	0.80	32.39*	42.73*

$341 \leq N \leq 352$, except for Scale 507, where $N = 325$.

* $p \leq .05$

Computation - Subtraction (511) had occurred at both socio-economic levels instead of only one as was the case for the longitudinal sample.

For the geometry scales, a somewhat inconsistent pattern emerged in Table 6.5B. For Congruence (524) no significant socio-economic effects were found in either curriculum. For the other scales, socio-economic effects appeared only in the SMSG groups except for Identifying Polygons (521), for which the Low-State group obtained higher scores rather than the Middle-State group. Significant text effects were found for four geometry scales. For three of these, Identifying Polygons (521), Identifying Triangles (523), and Similarity (525), the Middle-SMSG group had higher scores than the Middle-State group; while for Curved and Open Figures (522), the Low-State group surpassed the Low-SMSG group. This pattern had also been found for the selected sample, as shown in Table 4.5B.

Analysis of Variance for End-of-Third-Grade Scales

As shown in Tables 6.6A and 6.6B, all socio-economic effects were significant in the overall comparisons and in the pairwise comparisons in each curriculum separately. This general pattern of finding significant socio-economic effects was similar to results found in the analyses of the earlier years, but previously there had been some exceptions for geometry scales and the results of the socio-economic pairwise comparisons had not always been significant, especially in the State group.

As had been the case for the second grade scales, significant text effects were found for scales dealing with number line, geometry, and computation. For Number Line (703) effects were significant for both socio-economic levels, with the SMSG groups attaining higher scores. For the middle groups the SMSG curriculum resulted in higher scores on Structure of Space (706); the difference in the low groups, however, was not significant although it showed the same trend. Of the three scales that were extensions of scales previously used to measure computation, only Computation - Multiplication (709) now showed significant text effects for the low groups; whereas, in second grade, all three computation scales had shown this difference between curricula for the low groups. For Structure (728) the Low-State group surpassed the Low-SMSG group, but both groups obtained comparable scores on Computation (727). For the selected sample (see Tables 5.4A and 5.4B) results had been very similar to those discussed here except that there had been a significant overall text difference for Computation (727).

Text comparisons for items of Structure scale. For the two curricula at each socio-economic level, a comparison was made of the proportion of correct responses to the items which made up the scale Structure (728). A chi-square

Table 6.6A

Cell Means and Standard Deviations
of End-of-Third-Grade Scales
Longitudinal Sample

Scales	SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
	MN	SD	MN	SD	MN	SD	MN	SD
Math Scales								
No. Compare 701	4.30	1.69	5.63	1.42	4.70	1.77	5.37	1.58
Place Value 702	3.02	1.93	5.51	1.84	3.34	2.16	5.17	1.75
No. Line 703	3.46	1.09	4.25	1.37	3.12	1.14	3.81	1.33
Application 704	4.29	2.02	5.82	1.99	4.17	1.89	6.00	1.92
Rationals 705	3.32	1.48	4.91	1.77	3.67	1.61	5.05	1.82
Struct Space 706	3.96	1.35	5.08	1.57	3.60	1.56	4.49	1.61
Compute-Add 707	4.61	2.54	6.59	1.77	4.64	2.50	6.29	1.84
Compute-Sub 708	3.55	2.33	5.26	2.10	3.18	2.17	5.31	1.84
Compute-Mult 709	3.41	2.46	6.02	1.66	4.28	2.69	6.25	1.70
Computation 727	4.49	3.23	7.55	2.90	4.91	3.37	8.04	3.23
Structure 728	0.98	1.40	3.72	1.81	2.15	2.01	3.61	1.99
SAT Scale								
SAT Read-Tot #Rt A405	53.14	21.97	69.45	16.23	52.26	19.37	72.13	15.81

$333 \leq N \leq 353$

Note: Means obtained from analysis of variance program.

Standard deviations obtained from heterogeneity of regression program.

Table 6.6B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-Third-Grade Scales
Longitudinal Sample

Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales							
No. Compare 701	31.56*	0.15	3.37	2.97	0.90	31.54*	6.39*
Place Value 702	103.90*	0.00	2.43	1.37	1.11	78.43*	33.29*
No. Line 703	31.12*	8.72*	0.11	4.13*	4.62*	19.84*	12.29*
Application 704	62.16*	0.02	0.54	0.22	0.32	29.03*	33.18*
Rationals 705	68.46*	1.82	0.34	2.24	0.25	44.53*	26.43*
Struct Space 706	37.34*	8.24*	0.48	2.85	5.43*	26.27*	13.12*
Compute-Add 707	55.77*	0.30	0.47	0.01	0.65	37.75*	20.54*
Compute-Sub 708	66.22*	0.45	0.74	1.41	0.02	30.08*	36.16*
Compute-Mult 709	86.46*	4.99*	1.66	7.46*	0.38	63.65*	28.65*
Computation 727	74.58*	1.61	0.01	0.81	0.81	40.72*	34.52*
Structure 728	106.94*	6.99*	9.89*	19.74*	0.11	101.62*	23.43*
SAT Scale							
SAT Read-Tot #Rt A405	75.29*	0.19	0.72	0.11	0.70	34.89*	40.44*

$333 \leq N \leq 353$

* $p \leq .05$

(corrected) statistic was computed for each comparison. Items on which the Low-SMSG group and the Low-State group differed significantly were those which involved computations that were not very difficult. On the other hand, on items involving difficult computations and requiring an understanding of the basic structure for correct solutions, the two low groups performed equally poorly.

Two examples will be given to illustrate the nature of the items which did and did not distinguish the Low-SMSG and Low-State groups. Item 55, which did not distinguish between the groups, was $246 + 135 = 135 + \_\_\_\_$. Item 56, for which there was a significant difference between groups, was $\_\_\_\_ + 0 = 79$. Table A6.3 in the Appendix gives the proportions of correct responses for each item and the chi-square values.(17)

Just as there had been no differences in the total score on this scale for the two middle groups, there were no significant differences for any of the items. Both of the middle groups had fairly high percentages of correct responses (higher than 55%) on the items that could be solved quite easily by computation, but a fairly low percentage of correct responses (less than 30% on the items requiring use of basic properties underlying arithmetic.

This study of the items of Structure showed that the Low-State group tended to surpass the Low-SMSG group on computation but that there were no differences between these groups on understanding the basic structure of arithemtic. The two low groups had almost no correct responses on the items that required difficult computations if they were solved without using basic properties of arithmetic; the two middle groups also had few correct responses for these problems.

Summary of Analyses of Variance - Longitudinal Sample

The middle socio-economic groups obtained higher scores than the low socio-economic groups for most scales in each year from kindergarten to third grade except for some geometry scales.

For the end-of-kindergarten scales, the two curricula resulted in different performance only on the scales of the Metropolitan Readiness Test. The State group surpassed the SMSG group on all scales for which significant test effects were obtained. Usually text effects were found at only one of the two socio-economic levels.

At the end of first, second and third grades, text differences appeared in scales dealing with number line, geometry, and computation, with the SMSG

(17) The items of Structure (728) are given in ELMA Technical Report No. 4.

groups excelling in number line and geometry and the State groups in computation. (In a few instances the Low-State group had a higher score on a geometry scale.) The pairwise comparisons for Number Line showed different patterns in different years with a significant difference occurring in the low groups in first grade, the middle groups in second grade, and at both socio-economic levels in third grade. At the end of first grade, some differences in geometry scales were found in the low groups and some in the middle groups; but in the second and third grades, text differences in performance on geometry scales were found only in the middle group.

Text differences in the computation scales, addition and subtraction, were found only in the low groups, but for multiplication differences occurred at both levels. In first grade, significant differences in Computation - Multiplication were found only in the case of the middle groups, while in second and third grades differences appeared only for the low groups. For Computation - Addition and Computation - Subtraction, significant differences appeared between the Low-SMSG group and the Low-State group in first and second grades, but by the third grade there was no longer any difference. Also, in the third grade there was no text difference in the composite computation scale, but a large text difference was found in the Structure scale for the low groups. The superior performance of the Low-State group as compared to the Low-SMSG group on Structure seemed to result from differences in ability to compute rather than differences in knowledge of underlying structure.

Chapter 7

SOCIO-ECONOMIC AND TEXT COMPARISONS BY COVARIANCE ANALYSES FOR LONGITUDINAL SAMPLE FOR EACH YEAR

Text and socio-economic comparisons of achievement of children in the longitudinal sample were made in each year of the study, controlling for performance in the previous year by covariance analyses as had been done for the selected sample. The same covariates were used for each dependent variable as had been used for the selected sample; i.e., the best predictors in the multiple regressions, discussed previously, were used. (The covariates used in each analysis can be found in Table 2.2 in Chapter 2, Table 3.2 in Chapter 3, Table 4.2 in Chapter 4, and Table 5.2 in Chapter 5 for the successive grades.)

Analyses of Covariance for End-of-Kindergarten Common Scales

For the longitudinal sample, analyses of covariance were performed only for the common scales given at the end of kindergarten, since the sample sizes by cell were too low for subpopulation scales in this sample. Adjusted means obtained in the covariance analyses for end-of-kindergarten common scales are given in Table 7.1A, and F-values are presented in Table 7.1B. (Correlations and regression weights for each cell are given in Tables A7.1 and A7.2 in the Appendix.) For the scales Identifying Geometric Shapes (104), Counting Members of a Given Set - Picture Cards (110), Counting Members of a Given Set - Objects (111), Equivalent Sets - Objects (118), and Equivalent Sets - Dots (119), the overall socio-economic effects which had appeared in analyses of variance (see Tables 6.3A and 6.3B) were eliminated when adjustment was made by covariance analyses for differences in performance on entering kindergarten. For the scales Classifying (130) and Ordering (147), on the other hand, significant socio-economic effects remained in the overall comparisons and in three of the four pairwise comparisons. In the two SMSG groups, significant socio-economic effects also remained in the covariance analyses for two other scales, Counting Members of a Given Set - Picture Cards (110) and Equivalent Sets - Dots (119).

In the covariance analyses of common kindergarten scales for the selected sample, presented previously in Tables 2.12A and 2.12B, overall socio-economic effects had been eliminated for most of the scales. The results for the socio-economic pairwise comparison by covariance analyses in the selected sample, shown in Table 2.12B, differed somewhat from those obtained for the longitudinal sample, shown in Table 7.1B. In the two State groups, adjustment for knowledge

Table 7.1A

Cell Means Adjusted by Analysis of Covariance
for End-of-Kindergarten Common Scales
Using Beginning-of-Kindergarten Scales as Covariates
Longitudinal Sample

Scales		SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
		ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Math Scales					
Geom Shape: Ident	104	4.47	4.50	4.58	4.63
Count Set PC	110	6.17	6.90	7.05	6.62
Count Set: Obj	111	7.23	7.71	7.92	7.18
Equiv Sets: Obj	118	4.23	4.59	4.43	4.47
Equiv Sets: Dots	119	4.66	5.09	5.10	4.92
Classify S-2	130	4.87	5.65	5.29	5.57
Order Comp	147	5.26	6.68	5.37	7.18
WPPSI Scales					
Vocabulary	M112	8.91	10.66	9.34	10.45
Similarities	M114	9.89	10.23	10.11	11.27
Pict Compl	M117	9.33	10.20	9.55	10.68
Block Design	M120	9.94	10.72	10.61	10.62
Total	M123	38.10	41.73	39.74	42.88
MRT Scales					
Word Mean	R201	8.36	9.82	9.10	10.96
Listen	R202	10.39	10.62	10.27	11.99
Match	R203	8.48	9.51	9.10	9.78
Alphabet	R204	11.03	11.26	13.75	12.68
Numbers	R205	12.38	13.55	13.72	14.31
Copy	R206	5.06	5.28	5.96	5.80
(Sample Sizes)		(93≤N≤98)	(88≤N≤94)	(83≤N≤102)	(43≤N≤ 45)

Table 7.1B

Analyses of Covariance
Comparing Text and Socio-economic Effects
for End-of-Kindergarten Common Scales
Using Beginning-of-Kindergarten Scales as Covariates
Longitudinal Sample

Scales		F-Values							Heterogeneity of Regression	
		Overall Effects			Pairwise Comparisons					
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales										
Geom Shape: Ident	104	0.12	1.45	0.01	0.81	0.67	0.05	0.08	0.58	.814
Count Set: PC	110	0.25	1.15	4.20*	6.52*	0.39	3.93*	0.86	0.89	.534
Count Set: Obj	111	0.17	0.08	4.68*	3.99*	1.43	1.76	2.56	1.65	.102
Equiv Sets: Obj	118	0.80	0.03	0.62	0.61	0.15	1.82	0.01	1.15	.330
Equiv Sets: Dots	119	0.57	0.78	3.79	5.36*	0.46	4.46*	0.49	1.18	.309
Classify S-2	130	19.85*	2.31	5.15*	9.52*	0.23	29.24*	2.46	0.99	.445
Order Comp	147	19.92*	0.85	0.34	0.07	0.91	10.73*	11.21*	1.20	.280
WPPSI Scales										
Vocabulary	M112	22.30*	0.15	1.27	1.50	0.23	22.87*	5.87*	1.35	.209
Similarities	M114	5.10*	4.18*	1.73	0.33	4.58*	0.73	5.32*	1.86	.058
Pict Compl	M117	10.30*	1.50	0.19	0.41	1.10	5.54*	5.74*	1.56	.126
Block Design	M120	1.76	1.13	2.00	4.13*	0.05	4.74*	0.00	0.96	.490
Total	M123	18.12*	3.77	0.11	3.34	1.02	14.53*	6.89*	1.46	.119
MRT Scales										
Word Mean	R201	30.25*	11.35*	0.50	4.66*	6.69*	15.89*	16.75*	0.89	.538
Listen	R202	11.12*	5.19*	7.48*	0.14	10.12*	0.42	15.29*	1.60	.113
Match	R203	6.06*	1.91	0.29	2.44	0.28	6.00	1.71	0.68	.803
Alphabet	R204	1.18	32.72*	3.20	37.05*	6.24*	0.22	3.39	1.31	.229
Numbers	R205	5.97*	9.83*	0.72	10.36*	2.10	6.96*	1.21	0.72	.732
Copy	R206	0.01	8.05*	0.55	8.44*	1.73	0.45	0.15	0.97	.480

$311 \leq N \leq 355$

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

on entering kindergarten gave significantly higher adjusted scores for the low socio-economic group in the selected sample but not in the longitudinal sample. The pattern for the SMSG groups in the two samples was somewhat inconsistent. In the selected sample, the socio-economic difference remained for Equivalent Sets - Objects (118) rather than Equivalent Sets - Dots (119), as was the case for the longitudinal sample; and there was no difference in Counting Members of a Given Set - Picture Cards (111).

No significant overall text effects were found for the mathematics scales shown in Table 7.1B, just as none had been found in the analyses of variance presented in Table 6.3B. In the text pairwise comparison for the low socio-economic groups, however, a significantly higher adjusted score was obtained by the State group on four scales. In the analyses of variance, significant text effects had been found in only one pairwise comparison.

In the covariance analyses for the mathematics scale, differences in text effects between the selected sample and the longitudinal sample reflected the differences that had been found between the two samples when analyses of variance had been performed. Thus, for the longitudinal sample, there were no significant overall text effects for mathematics scales in either the analyses of variance or the analyses of covariance. For the selected sample, on the other hand, significant overall text effects were found in the analyses of variance for some scales, and these effects had remained in the analyses of covariance. The text pairwise comparisons in the covariance analyses for the middle socio-economic groups showed no significant differences in either sample, as had been the case in the analyses of variance for the two samples.

For the WPPSI and MRT scales, the significant socio-economic effects found in the analyses of variance for most of the scales (Table 6.3B) remained in the analyses of covariance, as did the text effects for the MRT scales. The only exceptions occurred for the socio-economic effect for the WPPSI scale, Block Design (M120), which no longer distinguished socio-economic levels in the State groups and for Alphabet (R204) and Copying (R206) from the MRT. The overall significant text effects that had been found in the analyses of variance remained in the analyses of covariance for five MRT scales, and the general pattern remained the same in the pairwise comparisons in the case of the low group except that there was some increase in the tendency of the State group to achieve higher scores than the SMSG group. These results were essentially the same as those obtained for the selected sample (Table 2.12B).

Summary of covariance analyses for end-of-kindergarten scales. The overall socio-economic effects found in the analyses of variance for the mathematics scales dealing with geometric shapes, counting sets, and forming equivalent sets

no longer appeared in the covariance analyses, but the effects for classifying and ordering remained. In the SMSG curriculum, however, significant socio-economic effects remained for two scales, one requiring counting and one the forming of equivalent sets, for which there had been no significant overall effect. The WPPSI scales and the MRT scales still distinguished the socio-economic levels, except for Block Design from the WPPSI and Alphabet and Copying from the MRT. Text effects, which had been found only for MRT scales in the analyses of variance, remained when the analyses of covariance were performed.

Analyses of Covariance for End-of-First-Grade Scales

The results of the covariance analyses for the end-of-first-grade scales are given in Tables 7.2A and 7.2B. (Correlation matrices and regression weights for each cell are in Tables A7.3 and A7.4.) Making an adjustment for performance at the end of kindergarten through covariance analyses resulted in the elimination of only a few of the significant socio-economic effects that had been found previously in the analyses of variance for the end-of-first-grade scales (see Tables 6.4A and 6.4B). This tendency for most of the significant socio-economic effects to remain in the covariance analyses for the mathematics scales given at the end of first grade was different from the results that had been obtained for the covariance analyses of the end-of-kindergarten scales (Tables 7.1A and 7.1B).

For two scales, Number Comparison - Order (307) and Comprehension - Group (328), socio-economic effects were no longer significant in either text group in the analyses of covariance (see Table 7.2B); but in the former scale there was a significant amount of heterogeneity of regression and for the latter scale a low value had been obtained for Cronbach's alpha. For two scales, Computation - Multiplication (313) and Application (309), differences between socio-economic levels were no longer found in the State groups. In the covariance analyses for end-of-kindergarten scales (see Table 7.1B), there had also been a tendency for fewer significant effects to occur in the State groups. The pattern of significant effects obtained for the covariance analyses of end-of-first-grade scales for the selected sample (Tables 3.5A and 3.5B) had been quite similar to those discussed here for the longitudinal sample, except that significant overall socio-economic effects had been found for Number Comparison - Order and Application, in addition to those found in the longitudinal sample.

In the case of the Raven scales, the covariance analyses reduced the socio-economic differences considerably, leaving significant overall effects only for Raven - Total (M204). For SAT - Reading Total (A209), there was still a significant difference between socio-economic levels in the covariance analyses. The

Table 7.2A

Cell Means Adjusted by Analysis of Covariance
for End-of-First-Grade Scales
Using End-of-Kindergarten Scales as Covariates
Longitudinal Sample

Scales		SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
		ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Math Scales					
Place Value	306	4.45	5.33	4.16	5.01
No. Compare	307	5.18	5.51	5.00	5.28
No. Line	308	3.28	3.78	2.71	3.30
Application	309	4.07	4.48	3.96	4.18
Compute-Add	311	6.53	7.69	6.99	7.77
Compute-Subtract	312	4.12	5.88	4.74	5.60
Compute-Mult	313	0.28	0.71	0.20	0.36
Ident Triangle	321	5.56	4.66	4.60	4.50
Ident Rectang	322	3.19	2.82	2.42	2.17
Curved Figure	323	3.05	3.75	3.16	3.40
Comprehend-Gp	328	1.88	2.03	1.52	1.78
Comprehend-Ind	329	1.83	2.99	2.33	2.41
Raven Scales					
Raven Set A	M201	7.57	7.67	7.21	7.69
Raven Set Ab	M202	4.87	5.28	4.73	5.22
Raven Set B	M203	3.64	4.29	3.83	3.93
Raven-Total	M204	16.12	17.20	15.82	16.74
SAT Scale					
SAT Read-Tot #Rt	A209	40.58	44.10	37.03	41.99
Kuhlmann-Anderson					
IQ: Kuhl-Ander	M324	113.60	109.20	106.95	107.88
(Sample Sizes)		($81 \leq N \leq 93$)	($78 \leq N \leq 81$)	($85 \leq N \leq 91$)	($44 \leq N \leq 55$)

Table 7.2B

Analyses of Covariance Comparing Text and Socio-economic Effects for End-of-First-Grade Scales Using End-of-Kindergarten Scales as Covariates Longitudinal Sample

Scales		F-Values							Heterogeneity of Regression	
		Overall Effects			Pairwise Comparisons					
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales										
Place Value	306	21.45*	3.15	0.01	1.75	1.48	14.11*	9.55*	1.08	.379
No. Compare	307	3.49	1.90	0.02	0.92	0.99	2.48	1.54	3.05*	.000*
No. Line	308	17.63*	18.51*	0.17	13.68*	6.30*	8.98*	9.78*	1.17	.307
Application	309	3.64	1.89	0.46	0.31	1.77	4.16*	0.81	0.89	.560
Compute-Add	311	19.69*	1.67	0.80	2.96	0.07	16.42*	6.09*	1.64	.080
Compute-Subtract	312	19.08*	0.35	2.49	2.83	0.39	21.45*	3.87*	1.44	.147
Compute-Mult	313	15.45*	8.86*	3.52	0.77	9.94*	19.42*	2.22	1.62	.142
Ident Triangle	321	4.92*	7.41*	4.04*	13.68*	0.26	10.48*	0.09	0.99	.470
Ident Rectang	322	3.92*	23.36*	0.20	17.19*	8.21*	3.51	1.15	1.30	.234
Curved Figure	323	6.75*	0.50	1.72	0.21	1.72	9.29*	0.83	1.87*	.038*
Comprehend-Gp	328	2.90	7.62*	0.30	6.69*	2.08	0.90	2.34	1.15	.327
Comprehend-Ind	329	22.19*	0.10	19.04*	10.03*	9.20*	46.47*	0.16	2.29*	.017*
Raven Scales										
Raven Set A	M201	2.96	1.16	1.41	3.26	0.00	0.25	3.72	1.06	.394
Raven Set Ab	M202	3.54	0.22	0.04	0.29	0.03	1.94	2.06	1.25	.247
Raven Set B	M203	3.81	0.21	2.59	0.81	1.72	7.58*	0.13	0.99	.458
Raven-Total	M204	5.10*	0.88	0.04	0.36	0.55	3.98*	2.12	1.52	.098
SAT Scale										
SAT Read-Tot #Rt	A209	8.18*	3.94*	0.26	3.67	0.98	3.31	5.38*	1.85	.060
Kuhlmann-Anderson										
IQ: Kuhl-Ander	M324	1.74	10.89*	5.03*	18.21*	0.52	6.76*	0.25	2.59*	.003*

$296 \leq N \leq 317$

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

heterogeneity of regression analysis for the Kuhlmann-Anderson test showed there was a significant degree of heterogeneity present. All these results for the Raven, the SAT, and the K-A scales are essentially the same as those that had been obtained for the selected sample.

The significant overall text effect that had been found for Number Line (308) in the analyses of variance (Tables 6.4A and 6.4B) remained in the analyses of covariance (Table 7.2B). In the text pairwise comparisons within both socio-economic levels, the SMSG curriculum groups surpassed the State curriculum groups. (In the analyses of variance only the low group pairwise comparisons had shown a significant text effect.) For Multiplication (313), the Middle-SMSG group still surpassed the Middle-State group in the covariance analysis. The significantly better performance of the Low-State group as compared to the Low-SMSG group on Computation - Addition (311) and Computation - Subtraction (312) which had been found in the analyses of variance disappeared when the covariates from kindergarten were added in the analyses. Significant text effects which had occurred in the analyses of variance for geometry scales remained in the analyses of covariance. For Identifying Rectangles (322), the SMSG groups attained higher scores within both socio-economic levels; and for Identifying Triangles (321), the Low-SMSG group surpassed the Low-State group. All these text effects in the covariance analyses of end-of-first-grade scales discussed above for the longitudinal sample were essentially the same as those that had been obtained for the selected sample, shown in Table 3.5B in Chapter 3.

Summary for covariance analyses for end-of-first-grade scales. Few of the differences in raw scores on scales at the end of first grade could be accounted for by differences in achievement at the end of kindergarten. The few socio-economic effects that were removed in the covariance analyses were confined to the State curriculum as they had been in kindergarten, but the removal of the socio-economic differences in the covariance analyses occurred much less frequently than had been the case in kindergarten. Text effects were left essentially unchanged by the covariance analyses as they had been in kindergarten.

Analyses of Covariance for End-of-Second-Grade Scales

For most of the end-of-second-grade mathematics scales which had distinguished the socio-economic levels in the analyses of variance (see Tables 6.5A and 6.5B), significant overall socio-economic effects remained in the analyses of covariance. See Tables 7.3A and 7.3B for the summary of the results of the analyses of covariance. (Tables A7.5 and A7.6 give correlations and regression weights by cell.) The scales Whole Number Comprehension (502) and Number Line (505), however, no longer distinguished between the two socio-economic levels in the overall covariance analyses, although there were still significant

Table 7.3A

Cell Means Adjusted by Analysis of Covariance
for End-of-Second-Grade Scales
Using End-of-First-Grade Scales as Covariates
Longitudinal Sample

Scales	SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
	ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Math Scales				
Vocabulary-Gp 501	17.34	18.09	16.99	18.20
Comprehension-Gp 502	4.23	4.74	4.69	4.87
No. Compare 503	4.79	5.64	4.87	5.59
Place Value 504	3.44	4.01	3.40	3.89
No. Line 505	3.59	4.16	3.53	3.52
Application 506	4.37	5.11	4.75	5.04
Rationals 507	3.56	3.66	3.41	4.40
Order Sets PC-Gp 508	1.23	1.77	1.47	1.77
Counting 509	1.83	1.74	1.75	1.85
Compute-Add 510	4.53	5.54	5.61	5.52
Compute-Subtract 511	3.78	4.53	4.43	5.05
Compute-Mult 512	1.45	3.00	1.93	2.95
Ident Polygons 521	2.43	3.07	1.91	0.70
Curved/Open Fig. 522	5.67	6.25	6.30	6.47
Ident Triangle 523	4.59	5.01	4.48	4.55
Congruence 524	3.51	3.39	3.73	3.53
Similarity 525	0.69	0.78	0.48	0.50
WISC Scales				
WISC Vocabulary M305	9.92	12.18	9.83	13.10
WISC Simil M306	11.13	11.91	11.33	11.85
WISC Pict Compl M307	9.73	10.90	9.97	10.06
WISC Block Des M308	10.28	11.22	10.96	11.60
WISC Total M311	40.78	46.38	42.19	46.41
SAT Scale				
SAT Read-Tot #Rt A305	45.12	49.95	43.42	52.34
(Sample Sizes)	($87 \leq N \leq 98$)	($86 \leq N \leq 90$)	($93 \leq N \leq 100$)	($41 \leq N \leq 53$)

N = 69 for Scale 507 in Cell A1.

Table 7.3B

Analyses of Covariance Comparing Text and Socio-economic Effects for End-of-Second-Grade Scales Using End-of-First-Grade Scales as Covariates Longitudinal Sample

Scales		F-Values								
		Overall Effects			Pairwise Comparisons				Heterogeneity of Regression	
		S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales										
Vocabulary-Gp	501	12.14*	0.24	0.83	1.10	0.07	4.29*	9.25*	2.68*	.002*
Comprehension-Gp	502	3.49	2.92	0.95	4.08*	0.28	4.60*	0.49	1.34	.196
No. Compare	503	20.20*	0.01	0.15	0.13	0.03	14.62*	8.66*	0.96	.498
Place Value	504	8.86*	0.22	0.07	0.03	0.23	6.48*	3.75	0.80	.651
No. Line	505	3.47	6.58*	4.54*	0.13	9.53*	9.16*	0.00	0.90	.525
Application	506	9.46*	0.95	2.01	3.30	0.08	11.63*	1.51	0.94	.491
Rationals	507	9.82*	3.39	7.91*	0.52	9.86*	0.18	16.63*	0.41	.929
Order Sets PC-Gp	508	11.05*	1.00	1.07	2.39	0.00	11.03*	2.82	1.32	.224
Counting	509	0.01	0.07	2.93	1.22	1.70	1.34	1.38	0.76	.604
Compute-Add	510	5.46*	8.87*	9.82*	21.78*	0.01	16.31*	0.12	1.95*	.029*
Compute-Subtract	511	10.63*	9.26*	0.13	6.79*	3.21	7.86*	4.36*	2.60*	.003*
Compute-Mult	512	33.15*	1.09	1.77	3.31	0.03	29.57*	10.51*	1.24	.239
Ident Polygons	521	0.91	28.06*	11.27*	2.17	32.08*	2.75	8.28*	1.17	.311
Curved/Open Fig.	522	5.08*	7.65*	2.03	10.38*	0.89	7.86*	0.49	0.40	.961
Ident Triangle	523	1.23	1.80	0.70	0.16	2.03	2.15	0.05	1.01	.435
Congruence	524	1.83	2.63	0.15	2.45	0.68	0.65	1.42	1.23	.274
Similarity	525	0.33	7.70*	0.16	3.61	4.21*	0.54	0.02	0.95	.484
WISC Scales										
WISC Vocabulary	M305	64.55*	1.72	2.56	0.05	3.42	29.10*	40.78*	0.42	.956
WISC Simil	M306	2.97	0.04	0.15	0.23	0.01	2.86	0.93	1.11	.350
WISC Pict Compl	M307	3.65	1.03	3.29	0.42	3.23	3.55	0.04	0.91	.517
WISC Block Design	M308	6.47*	3.75	0.28	3.91*	0.82	6.30*	2.08	3.10*	.000*
WISC Total	M311	32.90*	0.92	0.85	2.27	0.00	29.80*	11.67*	1.60	.091
SAT Scale										
SAT Read-Tot #Rt	A305	32.36*	0.09	3.16	1.25	1.91	9.41*	25.58*	1.97	.069

$307 \leq N \leq 330$

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

socio-economic effects in the pairwise comparisons for the SMSG groups. In the State groups, introduction of covariates eliminated socio-economic effects that had been found for several scales in the analyses of variance. Significant overall socio-economic effects were found in the analyses of covariance for only one of the three geometry scales, Curved and Open Figures (522), that had differentiated the socio-economic groups in the analyses of variance. In the analyses of covariance for the selected sample (see Tables 4.6A and 4.6B), the general pattern of results obtained in tests for socio-economic effects was about the same as has been discussed for the longitudinal sample.

Text effects found in the analyses of covariance for end-of-second-grade scales were mostly the same as had occurred in the analyses of variance shown in Tables 6.5A and 6.5B. On Number Line (505), the Middle-SMSG group still surpassed the Middle-State group; while on Computation - Addition (510) and Computation - Subtraction (511), the Low-State group still achieved better scores. For the latter two scales there was, however, a significant amount of heterogeneity of regression. Again the results correspond closely to those that had been obtained in the covariance analyses for the selected sample, shown in Tables 4.6A and 4.6B.

For SAT - Reading (A305), WISC - Vocabulary (M305), and WISC - Total Score (M311), significant socio-economic effects were found in the analyses of covariance (in Table 7.3B) as they had been in the analyses of variance (in Table 6.5B). (The covariates for the WISC scales included the Raven scales and are given in Table 4.4.) For the remaining WISC scales, which had also distinguished the socio-economic levels in the analyses of variance, introduction of covariates eliminated some of the significant effects. The pattern of results with the selected sample (Table 4.6B) were essentially the same with a few minor exceptions.

Summary for covariance analyses of end-of-second-grade scales. The general pattern for the covariance analyses is similar to that found for the end-of-first-grade scales. Most of the socio-economic effects found in the analyses of variance remained in the analyses of covariance for both the first grade scales and the second grade scales. When the effects were eliminated in the covariance analyses, however, there was little consistency between these two years as to which scales no longer showed socio-economic effects. The text effects for Number Line remained at both grade levels except in the pairwise comparison for the low groups. For the computation scales, however, there had been no significant text effects in the first grade analyses of covariance except for the mulitplication scale, on which the Middle-SMSG group performed better than the Middle State group. In the case of the second grade scales, text

differences had remained for the scales measuring addition and subtraction for the low groups; but there was significant heterogeneity of regression in the covariance analyses.

Analyses of Covariance for End-of-Third-Grade Scales

The results for the analyses of covariance for the third grade scales are shwon in Tables 7.4A and 7.4B. (The correlation matrix and regression weights are in Tables A7.7 and A7.8.) Most of the significant socio-economic effects which had been found in the analyses of variance for end-of-third-grade scales (see Tables 6.6A and 6.6B) were eliminated when the performance at the end of second grade was considered. The only significant socio-economic effects that remained were for the scales Place Value (702) and Structure (728) for the SMSG groups. For Computation - Multiplication (709) there was an overall significant socio-economic effect, but the F's did not reach significance in either pairwise comparison. For the latter scale and for Application (704), there was, however, significant heterogeneity of regression. The SAT scale, Reading (A405), also no longer distinguished socio-economic levels after adjustment had been made for reading ability at the end of second grade. Results obtained with the selected sample had been similar except that a significant socio-economic effect had remained for Computation (727). (See Tables 5.5A and 5.5B for the covariance analyses for the selected sample.)

Text effects that had been found in the analyses of variance (Table 6.6B) remained in the analyses of covariance and, in addition, several new differences appeared, as shown in Table 7.4B. Thus, there was still a significant text effect for Number Line (703), Structure of Space (706), and Structure (728). Although there was no longer a significant text effect for Computation - Multiplication (709), there was a significant degree of heterogeneity of regression in the analysis for this scale. Additional scales showing significant text effects were Computation - Addition (707) and Computation - Subtraction (708), for which the Low-SMSG group now had higher adjusted scores than the Low-State group, and Place Value (702), for which the Middle-SMSG group performed better than the Middle-State group. For the selected sample there had been somewhat fewer text differences in the covariance analyses (Table 5.5B), with the overall differences in Place Value and Number Line not reaching significance; and the pairwise comparison for the low groups for Structure of Space (706) was below the significance level.

Summary of covariance analyses for third grade. The results for the third grade scales differed from the previous grades in that most of the socio-economic differences found in analyses of variance disappeared in the covariance analyses. This result had occurred for some scales in kindergarten but not to

Table 7.4A

Cell Means Adjusted by Analysis of Covariance
for End-of-Third-Grade Scales
Using End-of-Second-Grade Scales as Covariates
Longitudinal Sample

Scales	SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
	ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Math Scales				
No. Compare 701	4.83	5.00	5.06	4.74
Place Value 702	3.96	4.71	3.83	4.14
No. Line 703	3.68	3.87	3.39	3.51
Application 704	5.07	4.93	4.69	5.12
Rationals 705	4.02	4.37	4.06	4.28
Struct Space 706	4.37	4.63	3.98	3.97
Compute-Add 707	5.60	5.73	5.01	5.38
Compute-Sub 708	4.52	4.38	3.72	4.24
Compute-Mult 709	4.50	5.06	4.79	5.22
Computation 727	5.79	6.22	5.86	6.58
Structure 728	1.70	2.95	2.65	2.81
SAT Scale				
SAT Read-Tot #Rt A405	59.35	61.84	60.09	61.04
(Sample Sizes)	($84 \leq N \leq 98$)	($83 \leq N \leq 91$)	($94 \leq N \leq 103$)	($52 \leq N \leq 58$)

N = 73 for Scale 705 in Cell A1.

Table 7.4B

Analyses of Covariance Comparing Text and Socio-economic Effects for End-of-Third-Grade Scales Using End-of-Second-Grade Scales as Covariates Longitudinal Sample

Scales	F-Values								
	Overall Effects			Pairwise Comparisons				Heterogeneity of Regression	
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales									
No. Compare 701	0.17	0.01	2.68	1.41	1.29	0.61	1.76	0.72	.735
Place Value 702	7.35*	4.15*	1.64	0.32	4.90*	9.15*	1.31	0.81	.671
No. Line 703	1.16	6.61*	0.09	3.22	3.48	1.15	0.34	1.03	.418
Application 704	0.61	0.32	3.03	3.19	0.59	0.33	2.75	1.86*	.038*
Rationals 705	1.92	0.03	0.14	0.02	0.13	1.75	0.68	1.70	.066
Struct Space 706	0.52	12.33*	0.78	4.10*	8.26*	1.40	0.00	1.52	.140
Compute-Add 707	1.17	5.26*	0.32	4.56*	1.31	0.20	1.29	0.82	.632
Compute-Sub 708	0.83	6.53*	3.04	10.35*	0.28	0.25	3.12	0.70	.782
Compute-Mult 709	4.62*	1.29	0.12	1.24	0.28	3.61	1.87	2.23*	.010*
Computation 727	3.12	0.55	0.28	0.03	0.71	1.09	2.61	0.95	.493
Structure 728	11.91*	5.69*	10.01*	18.31*	0.29	23.48*	0.30	1.53	.114
SAT Scale									
SAT Read-Tot #Rt A405	1.87	0.00	0.48	0.26	0.22	2.55	0.28	1.22	.296

$315 \leq N \leq 350$

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

as large an extent. Text differences found in the analyses of variance generally remained in the covariance analyses as they had in previous years. Also, significant differences in adjusted scores were found for the addition and subtraction scales, favoring the Low-SMSG group, which had not been present in the analyses of variance. Thus, it seems that in the third grade the Low-SMSG group made more progress in these skills than the Low-State group and their performance was comparable to the Low-State group at the end of third grade.

Chapter 8

PREDICTION OF END-OF-THIRD-GRADE SCALES AND WISC SCALES FROM KINDERGARTEN SCALES AND SOCIO-ECONOMIC AND TEXT COMPARISONS USING KINDERGARTEN SCALES AS COVARIATES

In all the analyses discussed up to now, predictions have been made for one year. In this section, scales from kindergarten will be used to predict performance at the end of the study, and text and socio-economic comparisons will be made using the kindergarten scales as covariates. Scales used as predictors were chosen from the initial mathematics inventory (K-01) given at the beginning of kindergarten and from the WPPSI given in the second half of kindergarten. Predictions were made for the mathematics scales and the reading scale given at the end of third grade and the WISC scales given at the end of second grade. (The WISC scales from second grade were used since no test of intelligence was given in third grade.)

Stepwise Regressions

Stepwise Regressions for End-of-Third-Grade Scales

The variables entering in the stepwise regression equations are given in Table 8.1, multiple correlations are shown in Table 8.2, and regression equations are in Table 8.3. (Correlations are given in Table A8.1 in the Appendix.)

Most of the maximum multiple correlations, shown in Table 8.2, were only slightly lower than those that had been obtained when scales from second grade were used to predict the end-of-third-grade scales. (See Table 5.2 for the multiple correlations obtained with the second grade scales as predictors.) For all mathematics scales, except Rationals (705), the first scale to enter the prediction equation was either Counting Buttons (004) or one of two WPPSI scales, Total Score (M123) or Block Design (M120). For almost all mathematics scales, Counting Buttons and a WPPSI scale were the first two predictors in the equation. The WPPSI scales had somewhat higher standardized regression coefficients (see Table 8.3) than other variables entering the equation for all mathematics scales except the computation scales (707, 708, 709, and 727).

For the SAT scale, Total Reading (A405), the multiple correlation with the kindergarten scales (R = .69) was slightly lower than the one achieved with the second grade SAT reading scale as a predictor (R = .88). Identification of Numerals (007) was the first predictor for Total Reading, and the WPPSI Total

Table 8.1

Means and Standard Deviations
of Kindergarten Scales and End-of-Third-Grade Scales
Total Sample

Kindergarten Scales: Covariates		Mean	Standard Deviation
Math Scales			
Geom Shape: Ident	003	2.48	1.27
Count Buttons	004	4.53	2.48
Write Numerals	005	1.02	1.89
Count Set PC	006	3.98	2.91
Ident Numerals	007	4.48	3.04
Vocabulary	010	14.96	2.92
Equiv Sets: Dots	012	3.23	2.15
Ordinal No.	013	3.69	1.71
Order Geom Shapes	014	0.83	0.87
Classify	015	4.28	1.92
Rote Count	016	1.61	1.62
Color Name	020	5.97	1.69
Color Ident	021	5.30	1.50
WPPSI Scales			
Vocabulary	M112	9.76	2.81
Similarities	M114	10.30	2.79
Pict Compl	M117	9.92	2.71
Block Design	M120	10.73	2.53
Total	M123	40.71	7.57
End-of-Third-Grade Scales: Dependent Variables			
Math Scales			
No. Compare	701	4.91	1.73
Place Value	702	4.21	2.17
No. Line	703	3.74	1.34
Application	704	5.06	2.08
Rationals	705	4.16	1.80
Struct Space	706	4.32	1.66
Compute-Add	707	5.55	2.31
Compute-Sub	708	4.36	2.36
Compute-Mult	709	4.81	2.61
Computation	727	6.26	3.51
Structure	728	2.70	2.10
SAT Scale			
Read-Tot #Rt	A405	61.30	20.23

N = 399

Note: Statistics obtained from stepwise regressions of the end-of-third-grade scales using the kindergarten scales as covariates.

Table 8.2

Order of Entry and Multiple Correlations
between End-of-Third-Grade Scales and Kindergarten Scales
Total Sample

Covariate Scales		Mathematics Scales					
		701	702	703	704	705	706
K-01 Math Scales							
Geom Shape: Ident	003			4;.52			
Count Buttons	004	2;.45			1;.52	4;.52	2;.49
Write Numerals	005						
Count Set PC	006	4;.48		2;.49			
Ident Numerals	007	3;.47	2;.61	3;.51	3;.63		
Vocabulary	010						
Equiv Sets: Dots	012						
Ordinal No.	013		3;.63		4;.64		
Order Geom Shapes	014						3;.50
Classify	015		4;.64			1;.38	
Rote Count	016					3;.51	
Color Name	020						
Color Ident	021						
WPPSI Scales							
Vocabulary	M112						
Similarities	M114						
Pict Compl	M117						
Block Design	M120			1;.41		2;.47	
Total	M123	1;.38	1;.52		2;.62		1;.45
Maximum Multiple R		.49	.67	.53	.67	.53	.51

(continued)

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the multiple R when the F-value to enter is less than 2.0.

Table 8.2

(second page)

Covariate Scales		Mathematics Scales					SAT
		707	708	709	727	728	A405
K-01 Math Scales							
Geom Shape: Ident	003						
Count Buttons	004	1;.43	1;.54	1;.43	1;.51	2;.50	3;.68
Write Numerals	005					3;.53	
Count Set PC	006				3;.61		
Ident Numerals	007		3;.62				1;.55
Vocabulary	010						
Equiv Sets: Dots	012						
Ordinal No.	013	3;.52			4;.63	4;.54	
Order Geom Shapes	014		5;.65				
Classify	015		4;.64	3;.52			
Rote Count	016						
Color Name	020						
Color Ident	021						
WPPSI Scales							
Vocabulary	M112						
Similarities	M114						
Pict Compl	M117						
Block Design	M120	2;.51	2;.60	2;.51	5;.64	1;.42	
Total	M123				2;.59		2;.65
Maximum Multiple R		.54	.67	.55	.66	.55	.69

Table 8.3

Regression Equations for Prediction
of End-of-Third-Grade Scales from Kindergarten Scales
Total Sample

A. Mathematics Scales

DEPENDENT VARIABLE 701 NMBR CMPARSN

STEP NUMBER 4

MULTIPLE R 0.4799
STD. ERROR OF EST. 1.5218

VARIABLES IN EQUATION

(CONSTANT 1.724292)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
004 COUNT BUTTONS	0.0811	0.1166	0.0441	3.3760	0.0665
006 COUNT MEMS:PC	0.0789	0.1331	0.0342	5.3363	0.0213
007 IDFY NUMERALS	0.0804	0.1414	0.0329	5.9885	0.0148
M123 TOTL- WPSI SC	0.0526	0.2306	0.0113	21.7415	0.0000

DEPENDENT VARIABLE 702 PLACE VALUE

STEP NUMBER 4

MULTIPLE R 0.6414
STD. ERROR OF EST. 1.6731

VARIABLES IN EQUATION

(CONSTANT -1.768327)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
007 IDFY NUMERALS	0.1821	0.2549	0.0325	31.4430	0.0000
013 ORDINAL NUMBE	0.1875	0.1474	0.0580	10.4344	0.0013
015 CLASSIFYING	0.1499	0.1330	0.0509	8.6616	0.0034
M123 TOTL- WPSI SC	0.0940	0.3279	0.0124	57.8186	0.0000

DEPENDENT VARIABLE 703 NUMBER LINE

STEP NUMBER 4

MULTIPLE R 0.5181
STD. ERROR OF EST. 1.1497

VARIABLES IN EQUATION

(CONSTANT 1.066241)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
003 GEO SHAP:IDFY	0.1151	0.1094	0.0465	6.1272	0.0137
006 COUNT MEMS:PC	0.0919	0.1998	0.0231	15.7541	0.0001
007 IDFY NUMERALS	0.0562	0.1276	0.0222	6.4047	0.0117
M120 BLKD:WPSI SCA	0.1654	0.3130	0.0241	46.9821	0.0000

(continued)

Table 8.3

(second page)

A. Mathematics Scales

DEPENDENT VARIABLE 704 APPLICATION

STEP NUMBER 4

MULTIPLE R 0.6441
STD. ERROR OF EST. 1.5985

VARIABLES IN EQUATION

(CONSTANT -0.376395)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
C04 COUNT BUTTONS	0.1941	0.2316	0.0441	19.3529	0.0000
C07 IDEY NUMERALS	0.1149	0.1677	0.0345	11.0537	0.0010
013 ORDINAL NUMBE	0.1700	0.1394	0.0557	9.3014	0.0024
M123 TOTL- WPSI SC	0.0839	0.3053	0.0118	50.7611	0.0000

DEPENDENT VARIABLE 705 RATIONALS

STEP NUMBER 4

MULTIPLE R 0.5174
STD. ERROR OF EST. 1.5459

VARIABLES IN EQUATION

(CONSTANT 0.760479)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
C04 COUNT BUTTONS	0.0955	0.1318	0.0378	6.3942	0.0118
015 CLASSIFYING	0.1939	0.2076	0.0465	17.3516	0.0000
016 ROTE COUNTING	0.1714	0.1549	0.0546	9.8518	0.0018
M120 BLKD:WPSI SCA	0.1734	0.2441	0.0323	28.7278	0.0000

DEPENDENT VARIABLE 706 STRUCT SPACE

STEP NUMBER 3

MULTIPLE R 0.4979
STD. ERROR OF EST. 1.4447

VARIABLES IN EQUATION

(CONSTANT 0.370787)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
C04 COUNT BUTTONS	0.1146	0.1713	0.0322	12.6840	0.0004
014 ORORG:GEO SHA	0.1963	0.1029	0.0871	5.0767	0.0247
M123 TOTL- WPSI SC	0.0801	0.3655	0.0105	58.5728	0.0000

(continued)

Table 8.3

(third page)

A. Mathematics Scales

DEPENDENT VARIABLE 707 COMPUTE ADD

STEP NUMBER 3

MULTIPLE R 0.5249
STD. ERROR OF EST. 1.9768

VARIABLES IN EQUATION

(CONSTANT 1.005568)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
004 COUNT BUTTONS	0.2512	0.2693	0.0470	28.5313	0.0000
013 ORDINAL NUMBE	0.1984	0.1463	0.0681	8.4774	0.0038
M120 BLKD:WPSI SCA	0.2493	0.2727	0.0417	35.7499	0.0000

DEPENDENT VARIABLE 708 COMPUTE SUBT

STEP NUMBER 5

MULTIPLE R 0.6492
STD. ERROR OF EST. 1.8075

VARIABLES IN EQUATION

(CONSTANT -0.556628)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
004 COUNT BUTTONS	0.2514	0.2641	0.0489	26.4112	0.0000
007 IDEY NUMERALS	0.1429	0.1836	0.0390	13.3739	0.0003
014 ORDRG:SEC SHA	0.3483	0.1283	0.1120	9.6806	0.0020
015 CLASSIFYING	0.1706	0.1391	0.0543	9.8893	0.0018
M120 BLKD:WPSI SCA	0.1979	0.2121	0.0386	26.2904	0.0000

DEPENDENT VARIABLE 709 COMPUTE MULT

STEP NUMBER 3

MULTIPLE R 0.5220
STD. ERROR OF EST. 2.2317

VARIABLES IN EQUATION

(CONSTANT -0.314618)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
004 COUNT BUTTONS	0.3012	0.2967	0.0518	33.7592	0.0000
015 CLASSIFYING	0.1893	0.1398	0.0654	8.3754	0.0040
M120 BLKD:WPSI SCA	0.2752	0.2471	0.0467	34.7653	0.0000

(continued)

Table 8.3

(fourth page)

A. Mathematics Scales

DEPENDENT VARIABLE 727 COMPUTATION

STEP NUMBER 5

MULTIPLE R 0.6384
STD. ERROR OF EST. 2.7170

VARIABLES IN EQUATION

(CONSTANT -2.526771)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
C04 COUNT BUTTONS	0.2853	0.2021	0.0761	14.1261	0.0002
C06 COUNT MEMS:PC	0.2370	0.1366	0.0604	15.4053	0.0001
013 ORDINAL NUMBE	0.3102	0.1552	0.0940	11.5395	0.0007
M120 BLKD:WPSI SCA	0.2349	0.1494	0.0747	9.8900	0.0018
M123 TOTL- WPSI SC	0.0701	0.1513	0.0261	7.2237	0.0075

DEPENDENT VARIABLE 728 STRUCTURE

STEP NUMBER 4

MULTIPLE R 0.
STD. ERROR OF EST. 1.

VARIABLES IN EQUATION

(CONSTANT -1.411011)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
C04 COUNT BUTTONS	0.1476	0.1747	0.0432	11.6765	0.0007
C05 WRITE NUMERAL	0.1533	0.1433	0.0520	8.4014	0.0023
013 ORDINAL NUMBE	0.1853	0.1507	0.0621	8.8989	0.0030
M120 BLKD:WPSI SCA	0.2421	0.2922	0.0375	41.7033	0.0000

(continued)

Table 8.3

(fifth page)

B. SAT Scale

DEPENDENT VARIABLE A405 4RT:SAT2 TOTA

STEP NUMBER 3

MULTIPLE R 0.6754
STD. ERROR OF EST. 14.9735

VARIABLES IN EQUATION

(CONSTANT 6.913498)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
C04 COUNT BUTTONS	1.7899	0.2194	0.3940	20.6351	0.0000
C07 IDFY NUMERALS	1.9832	0.2826	0.3199	34.6466	0.0000
M123 TOTL- WPSI SC	0.9292	0.3476	0.1092	72.4269	0.0000

Score and Counting Buttons were the other variables entering the regression equation.

In the analyses using second grade scales as predictors, shown previously in Tables 5.2 and 5.3, the corresponding second grade scale had generally been the best predictor for the third grade scales and the intelligence scales from the WISC had contributed very little. In the regression equations, which had second grade scales as independent variables (Table 5.3), the magnitude of the standardized regression coefficients for the first few variables entering the equations had generally been closer to each other than in the present analyses, shown in Table 8.3. For the third grade SAT reading scale, however, the second grade reading scale had a larger standardized regression coefficient than other variables, whereas all the kindergarten variables entering the equation in the present analyses had coeficients of more comparable magnitude.

Although the WPPSI scales played a prominent role in predicting third grade scales in stepwise regressions while the WISC scales contributed very little in predicting third grade scales, the product-moment correlations between the third grade scales and WPPSI scales were only slightly higher than those between the WISC scales and third grade scales. (See the correlation matrix for the WPPSI scales and third grade scales in Table A8.1, and the correlation matrix for the WISC scales and third grade scales in Table A5.1.) The correlations of the mathematics scales with the WPPSI Total Score ranged from .38 - .54, as compared to .32 - .49 for the WISC scales, Vocabulary and Block Design. The

difference between the highest correlation obtained with a WPPSI scale and a third grade mathematics scale and the highest correlation obtained with a WISC scale and the same mathematics scale was always less than or equal to .07.

Stepwise Regressions for the WISC Scales

The means and standard deviations for the WISC scales are given in Table 8.4, the multiple correlations are in Table 8.5, and the regression equations in Table 8.6. (The correlations for these analyses are shown in Table A8.1.) The kindergarten scales used as predictors are those given in Table 8.1. Prediction of the second grade WISC scales from kindergarten scales was as good as had been achieved with the Kuhlmann-Anderson scale and Raven scales from the end of first grade used as independent variables. (See Table 4.4 for the multiple correlations achieved with first grade scales.)

The total score of the WPPSI (M123) was the first variable to enter each equation except in the case of one WISC scale, Block Design (M308), for which the Block Design scale of the WPPSI (M120) entered first. (The total score from the Raven test, scale M204, had been the first variable to enter the

Table 8.4

Means and Standard Deviations
of WISC Scales
Total Sample

WISC Scales	Mean	Standard Deviation
Vocabulary M305	11.01	3.27
Similarities M306	11.62	3.14
Pict. Compl M307	10.09	2.62
Block Design M308	10.98	2.88
Total M311	43.70	8.76

N = 399

Note: Statistics obtained from stepwise regressions of WISC scales using the kindergarten scales of Table 8.1 as covariates.

Table 8.5

Order of Entry and Multiple Correlations
between WISC Scales and Kindergarten Scales
Total Sample

Covariate Scales		WISC Scales				
		M305	M306	M307	M308	M311
K-01 Math Scales						
Geom Shape: Ident	003	4;.65				
Count Buttons	004					
Write Numerals	005				3;.61	
Count Set PC	006					
Ident Numerals	007					
Vocabulary	010		3;.56			
Equiv Sets: Dots	012				4;.62	
Ordinal No.	013	3;.63				3;.71
Order Geom Shapes	014					
Classify	015		2;.54	3;.41		2;.70
Rote Count	016					
Color Name	020					
Color Ident	021					
WPPSI Scales						
Vocabulary	M112	2;.61			2;.59	
Similarities	M114					
Pict Compl	M117					
Block Design	M120			2;.40	1;.55	
Total	M123	1;.57	1;.48	1;.38		1;.67
Maximum Multiple R		.65	.59	.42	.63	.73

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the multiple R when the F-value to enter is less than 2.0.

Table 8.6

Regression Equations for Prediction
of WISC Scales from Kindergarten Scales
Total Sample

DEPENDENT VARIABLE M305 VOCB:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.6454
STD. ERROR OF EST. 2.5086

VARIABLES IN EQUATION

(CONSTANT 1.083601)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
003 GEO SHAP:IDFY	0.3442	0.1340	0.1028	11.2038	0.0009
013 ORDINAL NUMBE	0.3126	0.1632	0.0788	15.7494	0.0001
M112 VOCB:WPSI SCA	0.3737	0.3213	0.0705	28.0620	0.0000
M123 TOTL- WPSI SC	0.1049	0.2430	0.0271	15.0396	0.0001

DEPENDENT VARIABLE M306 SIML:WISC SCA

STEP NUMBER 3

MULTIPLE R 0.5564
STD. ERROR OF EST. 2.6161

VARIABLES IN EQUATION

(CONSTANT 1.981697)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
010 VOCABULARY	0.1463	0.1362	0.0518	7.9744	0.0050
015 CLASSIFYING	0.3776	0.2319	0.0773	23.9152	0.0000
M123 TOTL- WPSI SC	0.1433	0.3457	0.0192	55.7930	0.0000

DEPENDENT VARIABLE M307 P.CM:WISC SCA

STEP NUMBER 3

MULTIPLE R 0.4119
STD. ERROR OF EST. 2.3946

VARIABLES IN EQUATION

(CONSTANT 4.423923)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
015 CLASSIFYING	0.1530	0.1125	0.0663	5.3196	0.0215
M120 BLKD:WPSI SCA	0.1883	0.1820	0.0655	8.2890	0.0042
M123 TOTL- WPSI SC	0.0734	0.2121	0.0227	10.4702	0.0013

(continued)

Table 8.6

(second page)

DEPENDENT VARIABLE M308 BLKD:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.6224
STD. ERROR OF EST. 2.2665

VARIABLES IN EQUATION

(CONSTANT 3.424686)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
005 WRITE NUMERAL	0.2299	0.1504	0.0632	13.2244	0.0003
012 EQIV SETS:DOT	0.1853	0.1386	0.0574	10.4172	0.0014
M112 VOCB:WPSI SCA	0.1706	0.1664	0.0438	15.1916	0.0001
M120 BLKD:WPSI SCA	0.4712	0.4139	0.0508	86.1951	0.0000

DEPENDENT VARIABLE M311 TOTL:WISC SCA

STEP NUMBER 3

MULTIPLE R 0.7103
STD. ERROR OF EST. 6.1909

VARIABLES IN EQUATION

(CONSTANT 11.149536)

VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE	P
013 ORDINAL NUMBE	0.5921	0.1152	0.2068	8.1939	0.0044
015 CLASSIFYING	0.8679	0.1906	0.1843	22.1846	0.0000
M123 TOTL- WPSI SC	0.6546	0.5654	0.0446	215.2607	0.0000

equation in the previous analyses which used first grade scales as predictors for all the WISC scales except Similarities (M306).) The standardized regression coefficients for the WPPSI scales Block Design (M120) and Total Score (M123) had somewhat higher values in the equations for the WISC scales Block Design (M308) and Total Score (M311), respectively, than those for other variables entering these equations.

Covariance Analyses

Covariance Analyses for End-of-Third-Grade Scales with Kindergarten Scales as Covariates

Covariance analyses were performed to study socio-economic and text effects for third grade scales using as covariates those scales from the initial mathematics tests and from the WPPSI that had been the best predictors in the stepwise regression. The covariates used are those shown in Table 8.2. The results of the covariance analyses are given in Tables 8.7A and 8.7B, and the correlation matrices and regression weights by cell for these analyses are in Tables A8.2 and A8.3 in the Appendix. The analyses of covariance included all students in the longitudinal sample.

Socio-economic effects. Significant overall socio-economic effects were found in the covariance analyses for all scales except Number Comparison - Order (701). (There was, however, significant heterogeneity of regression for Structure (728).) In the pairwise socio-economic comparisons within texts, more significant differences were obtained for the groups following the SMSG curriculum than for the groups following the State curriculum. Significant differences were obtained in the SMSG curriculum for all scales except Application (704) for which the F-value just missed reaching a significant level. In the State groups, four of the scales, Number Comparison (701), Number Line (703), Structure of Space (706), and Computation - Addition (707), did not differentiate the socio-economic levels. These results from the covariance analyses show that the significant socio-economic effects found for third grade scales in analyses of variance (Table 6.6B) could generally not be attributed to differences between the socio-economic groups found in kindergarten except in some cases within the State groups.

Although performance on kindergarten scales could not account for most of the socio-economic differences that were found in analyses of variance for the third grade scales, achievement at the end of second grade had explained most of the differences found at the end of the following year. In the covariance analyses presented previously in Table 7.4, almost all socio-economic effects

Table 8.7A

Cell Means Adjusted by Analysis of Covariance
for End-of-Third-Grade Scales
Using Kindergarten Scales as Covariates
Longitudinal Sample

Scales		SMSG Low S.E. A1 ADJ. MN	SMSG Mid. S.E. B1 ADJ. MN	State Low S.E. C1 ADJ. MN	State Mid. S.E. D1 ADJ. MN
Math Scales					
No. Compare	701	4.62	5.21	5.06	4.91
Place Value	702	3.47	4.96	3.75	4.58
No. Line	703	3.64	4.03	3.30	3.55
Application	704	4.75	5.22	4.66	5.37
Rationals	705	3.54	4.58	3.89	4.74
Struct Space	706	4.27	4.71	3.87	4.11
Compute-Add	707	5.01	6.10	5.10	5.73
Compute-Subtract	708	4.01	4.63	3.68	4.67
Compute-Mult	709	3.83	5.50	4.68	5.77
Computation	727	5.25	6.56	5.78	6.94
Structure	728	1.29	3.32	2.42	3.31
SAT Scale					
SAT Read-Tot #Rt	A405	57.43	63.03	57.59	65.43

$326 \leq N \leq 345$

Table 8.7B

Analyses of Covariance Comparing Text and Socio-economic Effects for End-of-Third-Grade Scales Using Kindergarten Scales as Covariates Longitudinal Sample

Scales	F-Values							Heterogeneity of Regression	
	Overall Effects			Pairwise Comparisons					
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Math Scales									
No. Compare 701	1.47	0.19	5.20*	4.43*	1.44	6.61*	0.34	0.55	.878
Place Value 702	33.63*	0.09	3.42	1.45	1.95	34.81*	8.54*	0.49	.922
No. Line 703	5.55*	10.67*	0.27	4.38*	6.29*	4.83*	1.71	1.34	.197
Application 704	8.90*	0.03	0.42	0.14	0.28	3.65	6.31*	1.27	.235
Rationals 705	29.61*	2.55	0.35	2.84	0.44	21.64*	11.54*	1.00	.450
Struct Space 706	4.07*	10.51*	0.41	4.08*	6.47*	4.19*	1.04	1.34	.216
Compute-Add 707	13.47*	0.41	1.12	0.10	1.24	13.18*	3.51	1.46	.161
Compute-Sub 708	14.29*	0.53	0.93	1.70	0.02	5.05*	10.65*	0.73	.750
Compute-Mult 709	35.02*	6.66*	1.75	9.09*	0.69	30.97*	10.59*	0.82	.602
Computation 727	13.45*	2.24	0.07	1.84	0.67	9.51*	5.96*	0.84	.633
Structure 728	53.71*	9.39*	9.65*	22.49*	0.00	63.28*	9.69*	2.41*	.005*
SAT Scale									
SAT Read-Tot #Rt A405	13.30*	0.59	0.46	0.01	0.90	5.89*	8.86*	1.40	.186

$326 \leq N \leq 345$

*$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

had been eliminated in both curricula when covariance analyses using second grade scales as covariates had been performed.

Text effects. Significant text effects were found for Number Line (703) and Structure of Space (706), with the students using SMSG curriculum obtaining higher adjusted scores at both socio-economic levels. Text differences, with the State group achieving higher scores, were found for Number Comparison - Order (701), Computation - Multiplication (709) and Structure (728), but these significant text differences were found only in the low socio-economic groups. (Significant heterogeneity of regression was found for the scale Structure.)

Comparison of these results for text effects in the analyses of covariance shown in Table 8.7 with those found when analyses of variance had been performed for the third grade scales (Table 6.6) shows that all text effects that had been found for the raw scores remained when the covariates from kindergarten were added. There were also additional significant differences between texts in the low groups in the covariance analyses that had not appeared in the analyses of variance; the Low-State group achieved higher scores on Number Comparison - Order (701) and the Low-SMSG group did better on Structure of Space (706).

Use of second grade scales as covariates (see Table 7.4B) had previously eliminated more of the text effects found in the analyses of variance than had the kindergarten scales in the present analyses shown in Table 8.7B. Text differences in favor of the SMSG groups had been found for Structure of Space (706) with both sets of covariates, but the differences in Number Line (703) were just below the significance level when second grade scales had been used as covariates. The Low-State group maintained its superior performance compared to the Low-SMSG group on Structure (728) in both analyses, but the difference in Computation - Multiplication (709) did not appear when second grade scales were used as covariates. Also, the use of second grade scales as covariates had resulted in higher adjusted scores for SMSG within the low groups for the computation scales, Addition and Subtraction, whereas no differences in adjusted scores had been found when kindergarten scales were used as covariates.

Covariance Analyses for WISC Scales with Kindergarten Scales as Covariates

Text and socio-economic comparison for WISC scales with kindergarten scales used as covariates are shown in Tables 8.8A and 8.8B. (The correlation matrices and the regression weights for each cell are given in Tables A8.4 and A8.5 in the Appendix.) Significant socio-economic effects were obtained for Vocabulary (M305), Block Design (M308), and Total Score (M311) in both curricula. For the SMSG curriculum, significant differences between socio-economic levels were also found for the other two scales from the WISC, Similarities (M306),

Table 8.8A

Cell Means Adjusted by Analysis of Covariance
for WISC Scales
Using Kindergarten Scales as Covariates
Longitudinal Sample

WISC Scales		SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1
		ADJ. MN	ADJ. MN	ADJ. MN	ADJ. MN
Vocabulary	M305	10.24	12.13	9.99	12.31
Similarities	M306	11.03	12.33	11.10	11.86
Pict. Compl	M307	9.80	11.02	9.71	9.95
Block Design	M308	10.39	11.53	10.44	11.74
Total	M311	41.45	47.19	41.15	45.64

$339 \leq N \leq 342$

Table 8.8B

Analyses of Covariance
Comparing Text and Socio-economic Effects
for WISC Scales
Using Kindergarten Scales as Covariates
Longitudinal Sample

WISC Scales	F-Values							Heterogeneity of Regression	
	Overall Effects			Pairwise Comparisons					
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1	F	p
Vocabulary M305	49.43*	0.02	0.61	0.49	0.18	24.64*	29.61*	0.63	.816
Similarities M306	10.86*	0.48	0.91	0.04	1.15	10.71*	2.87	1.35	.210
Pict. Compl M307	6.46*	4.68*	3.43	0.06	6.83*	11.06*	0.35	1.31	.232
Block Design M308	19.84*	0.28	0.12	0.02	0.32	10.60*	11.16*	1.16	.308
Total M311	48.80*	1.96	0.90	0.13	2.33	38.37*	18.51*	1.57	.122

$339 \leq N \leq 342$

$p \leq .05$

Note: F-values for overall effects and pairwise comparisons were obtained by analysis of covariance.

The F-values and corresponding p's presented in the last two columns were obtained by a test for heterogeneity of regression run independently from the covariance analysis.

and Picture Completion (M307). No significant text effects were obtained except in the pairwise comparison within the middle groups for Picture Completion (M307), on which the SMSG group had the higher adjusted score.

In the analyses of variance done previously (see Table 6.5B), significant socio-economic effects had been found for all scales in both curricula. No significant text effects had been obtained in the analyses of variance except for the scale Picture Completion within the middle groups.

When covariances had been drawn from the end-of-first-grade scales rather than the kindergarten scales, fewer of the socio-economic differences had remained (see Table 7.3). In both text groups there had been significant socio-economic effects for the WISC scales, Vocabulary and Total Score. In the SMSG groups differences between socio-economic levels had also been found for Block Design, but there was significant heterogeneity of regression.

Chapter 9

SUMMARY OF RESULTS

Performance in elementary mathematics was studied for a period of four years (1966-70). The children were in the beginning of kindergarten when the study began and at the end of the third grade when the study ended. To compensate for a large attrition in the sample in the first two years of the study, students were added to the sample at the end of first grade.

This report deals with the results of two types of investigations performed as part of the ELMA study. One type of investigation studied the relationship between performance at the end of each year of the study and previous achievement by using stepwise regression analyses. The other area covered in this report is the effect of two curricula and two socio-economic levels on mathematics performance. The two curricula used in the study were the SRA text series adopted as the official text by the State of California prior to the period of the study (denoted as State) and the SMSG curriculum, using texts developed by the School Mathematics Study Group.

The mathematics test batteries given at the end of first, second, and third grades consisted, for the most part, of group-administered tests that were similar in content from year to year but modified yearly to make the difficulty level appropriate for the grade level of the students. Thus, each year from first grade through third grade, mathematics tests were given to measure knowledge of computation (addition, subtraction, and multiplication), number line, number comparison, place value, application (word problems), and rationals. Tests were also given each year to measure knowledge of geometric concepts and understanding of concepts underlying arithmetic, but there was considerable variation from year to year in the items selected to measure concepts in these areas.

Mathematics tests given in kindergarten differed from those discussed above. In kindergarten, abilities were measured that were thought to be necessary for subsequent mathematics learning in addition to elementary types of mathematics knowledge such as counting, ordering by size and number, forming equivalent sets, and knowledge of geometric shapes. The kindergarten mathematics tests were administered individually.

At various times, measures of intelligence were obtained for the children in the study. The Wechsler Preschool and Primary Scale of Intelligence (WPPSI) was given in kindergarten, the Raven Progressive Matrices Test and the Kuhlmann-

Anderson Test were given the following year, and the Wechsler Intelligence Scale for Children (WISC) was given near the end of second grade. To measure readiness for learning reading and arithmetic in first grade the Metropolitan Readiness Test was given at the very beginning of first grade. Reading achievement was measured each year from first grade to third grade by scales of the Stanford Achievement Test.

Predictions of End-of-Year Performance from Previous Achievement

For each year of the study, performance on scales given at the end of the year was predicted from performance at the end of the previous year, except for the end-of-kindergarten scales for which predictions were made from achievement on scales given at the beginning of kindergarten. In addition, performance on mathematics scales from the beginning-of-kindergarten test battery and from the WPPSI (which was administered during the second part of the kindergarten year) was used to predict performance on mathematics and reading scales given at the end of third grade and on WISC scales given at the end of second grade. The statistical technique used to make the predictions was that of stepwise regression.

For most of the areas of mathematics measured each year from first grade through third grade, prediction of performance on scales from achievement on scales given in the previous year gave multiple correlations ranging from .49 - .75 (except for the geometry scales, which were less predictable). The multiple correlations obtained for predicting performance on the end-of-kindergarten scales from performance on beginning-of-kindergarten scales were somewhat lower, but, as mentioned previously, the scales used in kindergarten differed from most of the ones given in subsequent years of the study. Generally, the values of the multiple correlations were slightly higher for second grade and third grade scales than they were for first grade scales (as would be expected from the fact that scales used in kindergarten differed). When performances on beginning-of-kindergarten scales and WPPSI scales were used to predict performance on end-of-third-grade mathematics scales and on second grade WISC scales, the values of the multiple correlations reached as high a level or higher than had been obtained when predictions were made for a one-year period (using performance on second grade mathematics scales for predicting achievement on third grade mathematics scales, and first grade scales for predicting performance on second grade WISC scales).

The magnitude of the multiple correlations obtained for predicting performance on mathematics scales at the end of first, second and third grades

were fairly comparable. The types of variables entering as predictors in the stepwise regressions and standardized regression coefficients differed, however, across these years. For performance on first grade scales, the best predictor was the scale Numbers of the Metropolitan Readiness Test (MRT), and this scale had a higher standardized regression coefficient than the other scales. When Numbers was excluded from the predictors, the scale Matching of the MRT was the first predictor, but the magnitude of the standardized regression coefficient was comparable to other predictors. The WPPSI scales rarely entered the equations for predicting performance on end-of-first-grade scales, and had low weights when they did enter.

For performance on second grade scales, the Kuhlmann-Anderson (K-A) test assumed the role of principal predictor, but its standardized regression coefficient was of the same order of magnitude as the other predictors. The second variable to enter the equation for predicting achievement on end-of-second-grade scales was generally the comparable scale from the first grade test battery. When predicting third grade performance from second grade performance, the second grade mathematics scales which were comparable to the ones given in third grade became the leading predictors; the WISC scales either did not enter the equation at all or contributed very little. For predicting third grade performance from performance on beginning-of-kindergarten mathematics scales and WPPSI scales, the WPPSI scales were generally the best predictors.

The different role played by intelligence scales in regression equations at different times in the study was not reflected in markedly different patterns for product-moment correlations between intelligence scales and mathematics scales. (The correlation matrices corresponding to the regression equations are given in the Appendix, for each chapter.) Thus, although the WPPSI scales had a prominent role in the prediction equation for third grade mathematics scales but not for first grade mathematics scales, the magnitude of the correlations between WPPSI scales and mathematics scales was comparable in these two years. Also, correlations between third grade mathematics scales and WPPSI scales were quite similar to the correlations obtained between third grade mathematics scales and WISC scales. In the stepwise regressions for third grade mathematics scales, however, the WPPSI and WISC had played very different roles.

Effect of Socio-economic Level and Curriculum on Mathematics Achievement

The effect of socio-economic level and curriculum on mathematics performance was studied by comparing children in four groups of schools categorized by two criteria: curriculum followed, SMSG or State, and socio-economic level,

middle or low. Two groups of schools were at a predominantly low socio-economic level and two groups were at a middle socio-economic level.

The classification of schools according to socio-economic levels was made by a school administrator who was acquainted with all the schools. A group of schools at each socio-economic level was then assigned to one of the two curricula. The schools assigned to each group were studied to determine whether the assignments made were appropriate for investigation of text and socio-economic effects. Because it was impossible to obtain any socio-economic measure for each child, scores on intelligence tests were used as indicators of socio-economic level since previous research has shown considerable correlation between scores on intelligence tests and socio-economic status. On the basis of the average intelligence scores, a number of schools were eliminated from all statistical analyses performed to study the effects of socio-economic level and curriculum on achievement in mathematics. The schools remaining in the statistical analyses in the two middle socio-economic cells had significantly higher intelligence scores than those in the two low socio-economic cells; and both cells at the same socio-economic level had very similar intelligence scores.

Text and socio-economic effects were studied by performing analyses of variance for the tests given each year. Analyses of covariance were performed to determine whether the differences found in the analyses of variance could be attributed to previous performance. All analyses of variance and covariance were performed on two samples, a sample of students present from kindergarten through third grade (Longitudinal Sample) and a sample of all students present during the year for which the analysis was performed (Selected Sample). As a whole, the results for the longitudinal and selected samples were quite similar. The greatest number of differences in results for the two samples occurred for the kindergarten year.

Socio-economic Effects on Mathematics Achievement

The middle socio-economic groups achieved higher scores than the low socio-economic groups on most of the scales given at the beginning of kindergarten, and maintained this better performance on most of the scales given at the end of each year of the study. Throughout the study, the geometry scales were the only type of scale that often failed to distinguish the socio-economic levels. For the other types of scales there were only scattered instances of failure to find significant differences between socio-economic levels.

For each year of the study, covariance analyses were performed, using the scores from the end of the previous year as covariates, to determine how many of the differences found at the end of the year could be attributed to differ-

ences present the preceding year. For the end-of-kindergarten scales, with beginning-of-kindergarten scales used as covariates, no clear pattern emerged. Some of the differences between socio-economic levels found in the analyses of variance were eliminated in the analyses of covariance, but results differed between the longitudinal and selected samples and between scales given to all children and those given to subpopulations. At the end of first and second grades, significant socio-economic differences between the two groups following the SMSG curriculum remained after the covariance analyses for all but one of the scales. However, for the State groups, a number of scales no longer distinguished the two socio-economic groups. By the end of third grade, covariance analyses, with end-of-second-grade scales as covariates, eliminated most of the socio-economic effects. For the State groups, no socio-economic differences were found at the end of third grade, while for the SMSG groups only a few scales still distinguished the groups. Thus, it would seem that the middle socio-economic groups generally made greater gains in mathematics achievement each year than did the low groups until the third grade when differences between socio-economic levels could be accounted for by end-of-second-grade performance. (A similar result was obtained on reading ability as measured by reading scales from the SAT.)

Curriculum Effects on Mathematics Achievement

The SRA texts used in the State curriculum were compared with the SMSG texts used in the SMSG curriculum. A discussion of the results of the comparison is given in Appendix 2 of ELMA Report No. 1. A brief summary of some of the main conclusions that were reached will be presented here. Both text series may be classified as modern but there were differences in coverage of some of the areas that were tested throughout the ELMA study.

In the area of geometry, coverage in the SMSG texts was more extensive than in the SRA texts. The SRA texts were mostly restricted to a narrow aspect of metric geometry (measurement), while the SMSG texts dealt with non-metric geometry, metric geometry, and coordinate geometry. Another area in which the SMSG texts provided extensive coverage was associations of numbers with points of a line, while the SRA texts had no such associations explicitly. In the area of rationals SMSG also had more extensive coverage than the SRA series. In both series, rationals were associated with partitions of plane regions, physical objects, and sets of objects. The SMSG text, however, gave more emphasis to partitions of physical sets of objects, and included extensive material in the relationship between rational numbers and quotients in division.

The SRA texts provided relatively extensive coverage of place value while coverage in the SMSG texts was limited. In the area of computation, the SRA

texts provided appreciably more practice exercises than the SMSG curriculum. In SMSG, multiplication was introduced at the end of first grade, while in SRA multiplication was not presented until the second grade. The two texts were comparable in the areas of number comparison (order), comprehension, and application (word problems).

The test results revealed fewer differences between the scores obtained by the SMSG group and the State group (the group using SRA texts) than would be expected from the above analyses of differences between the two texts.

The two curricula produced differences in mathematics achievement consistently throughout the study in only two types of scales, those measuring computation skills and those measuring skill in use of the number line. There were also some text differences for the geometry scales, but the pattern found for geometry scales was not as consistent as those for computation and number line. There was a considerable variation in the types of geometry scales used which could account for the different types of results obtained.

Initially, the two groups at each socio-economic level, assigned to the different curricula, obtained comparable scores on the mathematics inventory given at the beginning of kindergarten (except geometry scales). The low-SMSG group generally had higher scores than the low-State group on geometry scales at the beginning of kindergarten. On later tests, the SMSG groups often achieved higher scores on geometry scales than did the State groups at comparable socio-economic levels. However, there were a considerable number of exceptions on different scales in different years, and in some cases the State groups achieved higher scores. The tendency for the SMSG groups to attain higher scores on geometry scales is consistent with the greater emphasis placed on geometry in the SMSG curriculum than in the State curriculum. Better performance on geometry scales for the SMSG groups was usually found at only one socio-economic level, and the level for which the significant effect occurred varied for the different years of the study. On two geometry scales which measured topics covered only in the SMSG texts, significant differences in favor of the SMSG group were found only in the case of the middle socio-economic groups. One of these scales, given in second grade, required knowledge of the distinction between congruent and similar figures; the other scale, given in third grade, concerned the concepts of point, line, and plane or their relationships, the identification of a cylinder, and the topological notion of "outside". Considerably more time was devoted to the number line in the SMSG curriculum than in the State curriculum, which resulted in the SMSG groups generally achieving higher scores than the State groups on scales measuring skill in using the number line.

On scales measuring computation, the low-State group generally had better performance than the low-SMSG group. By the end of third grade, however, the low groups in the two curricula had comparable scores on Computation - Addition and Computation - Subtraction and differed only on Computation - Multiplication. The middle socio-economic groups for both curricula had comparable scores on most of the computation scales throughout the study. The greater effectiveness of the State curriculum in promoting computation skills for lower socio-economic level students in the study could be attributed to the considerably greater amount of practice provided for computation in the SRA text.

The analysis of texts had revealed that the SMSG texts provided more extensive coverage of rationals, while the SRA texts gave more extensive experience with place value. There were, however, no differences in test results between the groups following the two curricula in these two areas.

Table A1.1

Scales* Included in ELMA Report No. 2.

BEGINNING-OF-KINDERGARTEN SCALES

Scale Code	Name of Scale	Reference Page in ELMA Technical Report No. 1
001	Geometric Shapes - Matching	255
002	Geometric Shapes - Naming	256
003	Geometric Shapes - Identifying	257
004	Counting Buttons	258
005	Writing Numerals	259
006	Counting Members of a Given Set - Picture Cards	260
007	Identification of Numerals	261
008	Visual Memory - Objects	262
010	Vocabulary (Individual)	263
012	Equivalent Sets - Dots	265
013	Ordinal Number	266
014	Ordering Geometric Shapes	267
015	Classifying	268
016	Rote Counting	269
017	Visual Memory - Pictures	270
019	Color - Matching	271
020	Color - Naming	272
021	Color - Identifying	273
022	Response to Verbal Directions	274
023	Attention to Tasks	275

(continued)

* NOTE: The scale descriptions and statistical properties of these scales may be found in ELMA Technical Reports on the pages noted in the last column.

Table A1.1
(second page)

END-OF-KINDERGARTEN SCALES

Scale Code	Name of Scale	Reference Page in ELMA Technical Report No. 1
104	Geometric Shapes - Identifying	286
110	Counting Members of a Given Set - Picture Cards	292
111	Counting Members of a Given Set - Objects	293
118	Equivalent Sets - Objects	299
119	Equivalent Sets - Dots	300
130	Classifying S-2	308
147	Ordering Composite	320
106X	Counting Buttons	288
108X	Writing Numerals	290
113X	Identification of Numerals	295
117X	Vocabulary (Individual)	298
102Y	Geometric Shapes - Naming	284
120Y	Ordinal Number	301
128Y	Classifying S-1	306
129Y	Classifying	307
137Z	Ordering Sets of Objects	312
139Z	Ordering Pictured Sets (Individual)	313
146Z	Conservation Composite	319
M112	WPPSI Vocabulary Scaled Score	331
M114	WPPSI Similarities Scaled Score	332
M117	WPPSI Picture Completion Scaled Score	332
M120	WPPSI Block Design Scaled Score	333
M123	WPPSI Short Form Total Scaled Score	333
R201	MRT Word Meaning Raw Score	338
R202	MRT Listening Raw Score	338
R203	MRT Matching Raw Score	338
R204	MRT Alphabet Raw Score	339
R205	MRT Numbers Raw Score	339
R206	MRT Copying Raw Score	339

(continued)

Table A1.1
(third page)

END-OF-FIRST-GRADE SCALES

Scale Code	Name of Scale	Reference Page in ELMA Technical Report No. 2
306	Place Value	213
307	Number Comparison (Order)	214
308	Number Line	215
309	Application	216
310	Rationals	217
311	Computation - Addition	218
312	Computation - Subtraction	219
313	Computation - Multiplication	220
321	Identifying Triangles	225
322	Identifying Rectangles	226
323	Curved Figures	227
328	Comprehension (Group)	232
329	Comprehension (Individual)	233
M201	Raven Set A	250
M202	Raven Set Ab	250
M203	Raven Set B	250
M204	Raven Total Score	251
M324	Kuhlmann-Anderson I.Q.	253
A201	SAT I Word Reading Number Right	256
A205	SAT I Paragraph Meaning Number Right	256
A209	SAT I Total Reading Number Right	257

(continued)

Table A1.1
(fourth page)

END-OF-SECOND-GRADE SCALES

Scale Code	Name of Scale	Reference Page in ELMA Technical Report No. 3
501	Vocabulary (Group)	226
502	Whole Number Comprehension	227
503	Number Comparison (Order)	228
504	Place Value	229
505	Number Line	230
506	Application	231
507	Rationals	232
508	Ordering Pictured Sets (Group)	233
509	Counting	234
510	Computation - Addition	235
511	Computation - Subtraction	236
512	Computation - Multiplication	237
521	Identifying Polygons	246
522	Curved and Open Figures	247
523	Identifying Triangles	248
524	Congruence	249
525	Similarity	250
M305	WISC Vocabulary Scaled Score	263
M306	WISC Similarities Scaled Score	263
M307	WISC Picture Completion Scaled Score	263
M308	WISC Block Design Scaled Score	264
M311	WISC Total Scaled Score	264
A301	SAT II Word Meaning Number Right	266
A303	SAT II Paragraph Meaning Number Right	266
A305	SAT II Total Reading Number Right	267

(continued)

Table A1.1
(fifth page)

END-OF-THIRD-GRADE SCALES

Scale Code	Name of Scale	Reference Page in ELMA Technical Report No. 4
701	Number Comparison (Order)	132
702	Place Value	133
703	Number Line	134
704	Application	135
705	Rationals	136
706	Structure of Space	137
707	Computation - Addition	138
708	Computation - Subtraction	139
709	Computation - Multiplication	140
727	Computation	158
728	Structure	159
A401	SAT II Word Meaning Number Right	168
A403	SAT II Paragraph Meaning Number Right	168
A405	SAT II Total Reading Number Right	169

Table A2.1

Means and Standard Deviations
of Beginning-of-Kindergarten Scales
for All Students with MRT Scale Scores

K-01 Scales	MN	SD
002	1.52	1.15
003	2.52	1.22
004	4.44	2.55
005	1.00	1.87
006	4.14	2.92
007	4.43	3.02
008	3.30	1.27
010	14.89	2.95
012	3.18	2.13
013	3.56	1.78
014	0.84	0.86
015	4.37	1.96
016	1.54	1.58
017	1.12	1.03
020	5.94	1.73
021	5.29	1.49

N = 609

Note: Statistics obtained from stepwise regressions of MRT scales using beginning-of-kindergarten scales as covariates.

Table A2.2
Correlations of End-of-Kindergarten Common Scales and Beginning-of-Kindergarten Scales
Total Sample

A. Mathematics Scales

		1	2	3	4	5	6	7	8	9	10	11	12
1	CC2 GEO SHAP:NAME	1.00	0.53	0.30	0.23	0.20	0.29	0.11	0.35	0.20	0.28	0.16	0.40
2	CC3 GEO SHAP:IDFY		1.00	0.28	0.16	0.22	0.27	0.13	0.34	0.20	0.23	0.18	0.39
3	CC4 COUNT BUTTONS			1.00	0.41	0.38	0.67	0.02	0.46	0.47	0.49	0.34	0.47
4	CC5 WRITE NUMERALS				1.00	0.33	0.49	0.09	0.25	0.26	0.35	0.27	0.34
5	CC6 COUNT MEMS:PC					1.00	0.48	0.02	0.35	0.40	0.32	0.26	0.41
6	CC7 IDFY NUMERALS						1.00	0.03	0.42	0.42	0.46	0.33	0.45
7	CC8 VIS MEMRY:OBJS							1.00	0.10	0.03	0.07	0.06	0.09
8	C1C VOCABULARY								1.00	0.33	0.45	0.31	0.46
9	C12 EQIV SETS:DOTS									1.00	0.34	0.29	0.40
10	C13 ORDINAL NUMBER										1.00	0.35	0.45
11	C14 ORDRG:GEO SHAP											1.00	0.35
12	C15 CLASSIFYING												1.00

1	CC2 GEO SHAP:NAME	0.25	0.13	0.30
2	CC3 GEO SHAP:IDFY	0.21	0.16	0.31
3	CC4 COUNT BUTTONS	0.48	0.16	0.49
4	CC5 WRITE NUMERALS	0.44	0.14	0.23
5	CC6 COUNT MEMS:PC	0.35	0.17	0.37
6	CC7 IDFY NUMERALS	0.47	0.14	0.46
7	CC8 VIS MEMRY:OBJS	0.04	0.18	0.04
8	C1C VOCABULARY	0.31	0.17	0.37
9	C12 EQIV SETS:DOTS	0.30	0.17	0.30
10	C13 ORDINAL NUMBER	0.49	0.11	0.28
11	C14 ORDRG:GEO SHAP	0.25	0.09	0.21
12	C15 CLASSIFYING	0.38	0.19	0.39
13	C16 RCTE COUNTING	1.00	0.13	0.29
14	C17 VIS MEMRY:PICT		1.00	0.11
15	C20 COLOR:NAMING			1.00

(continued)

Table A2.2 (second page) -- A. Mathematics Scales (continued)

		16	17	18	19	20	21	22	23
1	002 GEO SHAP:NAME	0.25	0.15	0.10	0.10	0.15	C.11	C.15	C.21
2	CC3 GEC SHAP:IDFY	0.28	0.14	0.15	0.15	0.15	0.17	0.19	0.20
3	CC4 COUNT BUTTONS	0.45	0.23	0.42	0.34	0.41	C.44	0.40	0.49
4	CC5 WRITE NUMERALS	0.19	0.11	0.24	0.23	0.21	0.22	0.17	C.28
5	CC6 CCUNT MEMS:PC	0.36	0.14	0.36	0.29	0.32	0.36	0.28	0.33
6	CC7 IDFY NUMERALS	0.42	0.21	0.34	0.31	0.36	C.37	C.31	C.42
7	CC8 VIS MEMRY:CEJS	0.05	0.02	0.07	0.07	0.03	C.C1	C.C1	C.06
8	C1C VOCABULARY	C.37	0.14	0.24	0.23	0.28	0.26	0.34	0.36
9	012 EQIV SETS:DOTS	C.25	C.19	0.32	0.27	C.35	C.38	C.27	0.41
10	C13 CRDINAL NUMBER	0.25	0.13	0.25	0.23	0.25	0.26	0.26	0.38
11	C14 ORDRG:GEO SHAP	0.22	0.12	0.21	C.19	0.23	0.24	0.23	0.35
12	015 CLASSIFYING	0.36	0.18	C.27	0.20	0.27	C.28	C.34	C.38
13	C16 RCTE CCUNTING	0.27	0.14	0.29	0.26	0.25	0.28	0.21	0.29
14	C17 VIS MEMRY:PICT	C.09	C.C6	0.10	0.11	0.13	C.16	C.11	0.13
15	C2C CCLCR:NAMING	0.82	0.22	0.21	0.18	0.24	C.25	0.27	C.31
16	C21 CCLCR:IDFYING	1.00	0.21	0.21	0.21	0.26	0.26	0.24	0.28
17	104 GEO SHAP:IDFY		1.CC	0.14	C.16	0.19	0.19	0.18	C.18
18	110 CCLNT MEMS:PC			1.00	0.63	0.39	C.43	0.27	0.30
19	111 CNT MEMS:CBJS				1.00	0.44	0.47	0.25	0.28
20	116 EQIV SETS:OBJS					1.CC	C.62	C.30	0.36
21	119 EQIV SETS:DCTS						1.00	0.35	0.36
22	130 CLASFY(OVRLAP)							1.00	0.41
23	147 CRDRG:CCMPCS								1.00

(continued)

Table A2.2 (third page) -- B. WPPSI Scales

		1	2	3	4	5	6	7	8	9	10	11	12
1	002 GEO SHAP:NAME	1.00	0.54	0.31	0.23	0.21	0.29	0.10	0.36	0.20	0.27	0.18	0.40
2	003 GEO SHAP:IDFY		1.00	0.28	0.19	0.22	0.27	0.12	0.34	0.20	0.21	0.19	0.39
3	004 COUNT BUTTONS			1.00	0.41	0.59	0.67	0.01	0.46	0.47	0.49	0.33	0.46
4	005 WRITE NUMERALS				1.00	0.34	0.50	0.09	0.25	0.26	0.36	0.28	0.35
5	006 COUNT MEMS:PC					1.00	0.48	0.01	0.36	0.40	0.34	0.26	0.41
6	007 IDFY NUMERALS						1.00	0.03	0.42	0.41	0.46	0.32	0.45
7	008 VIS MEMRY:OBJS							1.00	0.09	0.02	0.06	0.07	0.08
8	010 VOCABULARY								1.00	0.33	0.44	0.31	0.47
9	012 EQIV SETS:DOTS									1.00	0.34	0.29	0.39
10	013 ORDINAL NUMBER										1.00	0.36	0.45
11	014 ORDRG:GEO SHAP											1.00	0.35
12	015 CLASSIFYING												1.00

		13	14	15	16	17	18	19	20
1	002 GEO SHAP:NAME	0.24	0.13	0.30	0.24	0.26	0.23	0.16	0.15
2	003 GEO SHAP:IDFY	0.20	0.17	0.30	0.29	0.30	0.23	0.19	0.20
3	004 COUNT BUTTONS	0.48	0.17	0.49	0.45	0.34	0.26	0.30	0.37
4	005 WRITE NUMERALS	0.45	0.16	0.22	0.19	0.17	0.09	0.20	0.24
5	006 COUNT MEMS:PC	0.35	0.16	0.38	0.36	0.29	0.19	0.26	0.33
6	007 IDFY NUMERALS	0.47	0.15	0.45	0.40	0.31	0.24	0.28	0.35
7	008 VIS MEMRY:OBJS	0.03	0.17	0.03	0.04	0.08	0.07	0.03	0.07
8	010 VOCABULARY	0.31	0.16	0.36	0.37	0.42	0.26	0.25	0.27
9	012 EQIV SETS:DOTS	0.30	0.17	0.30	0.25	0.25	0.14	0.32	0.36
10	013 ORDINAL NUMBER	0.49	0.11	0.27	0.24	0.26	0.20	0.24	0.30
11	014 ORDRG:GEO SHAP	0.24	0.09	0.20	0.22	0.20	0.13	0.20	0.26
12	015 CLASSIFYING	0.37	0.20	0.40	0.36	0.31	0.24	0.27	0.29
13	016 ROTE COUNTING	1.00	0.13	0.28	0.26	0.24	0.20	0.21	0.20
14	017 VIS MEMRY:PICT		1.00	0.11	0.09	0.15	0.08	0.13	0.13
15	020 COLOR:NAMING			1.00	0.82	0.29	0.23	0.15	0.22
16	021 COLOR:IDFYING				1.00	0.25	0.18	0.13	0.22
17	M112 VOCB:WPSI SCA					1.00	0.44	0.37	0.34
18	M114 SIML:WPSI SCA						1.00	0.21	0.24
19	M117 P.CM:WPSI SCA							1.00	0.40
20	M120 BLKD:WPSI SCA								1.00

(continued)

Table A2.2 (fourth page) -- C. MRT Scales

		1	2	3	4	5	6	7	8	9	10	11	12
1	002 GEO SHAP:NAME	1.00	0.51	0.31	0.22	0.18	0.31	0.09	0.38	0.16	0.28	0.18	0.40
2	003 GEO SHAP:IDFY		1.00	0.24	0.11	0.19	0.24	0.06	0.33	0.14	0.18	0.18	0.36
3	004 COUNT BUTTONS			1.00	0.38	0.57	0.67	-0.02	0.46	0.45	0.49	0.33	0.45
4	005 WRITE NUMERALS				1.00	0.33	0.48	0.06	0.26	0.22	0.30	0.25	0.32
5	006 COUNT MEMS:PC					1.00	0.49	0.03	0.35	0.41	0.33	0.22	0.38
6	007 IDFY NUMERALS						1.00	0.02	0.41	0.41	0.45	0.31	0.44
7	008 VIS MEMRY:OBJS							1.00	0.05	-0.02	0.06	0.07	0.06
8	010 VOCABULARY								1.00	0.32	0.45	0.29	0.45
9	012 EQIV SETS:DOTS									1.00	0.31	0.27	0.40
10	013 ORDINAL NUMBER										1.00	0.34	0.45
11	014 ORDRG:GEO SHAP											1.00	0.33
12	015 CLASSIFYING												1.00

		13	14	15	16	17
1	002 GEO SHAP:NAME	0.22	0.13	0.26	0.17	0.28
2	003 GEO SHAP:IDFY	0.16	0.11	0.23	0.21	0.25
3	004 COUNT BUTTONS	0.46	0.17	0.48	0.44	0.41
4	005 WRITE NUMERALS	0.36	0.16	0.18	0.16	0.23
5	006 COUNT MEMS:PC	0.34	0.15	0.37	0.36	0.31
6	007 IDFY NUMERALS	0.46	0.15	0.43	0.37	0.35
7	008 VIS MEMRY:OBJS	0.01	0.13	0.04	0.04	0.01
8	010 VOCABULARY	0.33	0.17	0.34	0.32	0.47
9	012 EQIV SETS:DOTS	0.25	0.19	0.28	0.23	0.29
10	013 ORDINAL NUMBER	0.47	0.13	0.26	0.22	0.36
11	014 ORDRG:GEO SHAP	0.23	0.12	0.18	0.18	0.29
12	015 CLASSIFYING	0.36	0.21	0.36	0.30	0.41
13	016 ROTE COUNTING	1.00	0.14	0.25	0.23	0.26
14	017 VIS MEMRY:PICT		1.00	0.11	0.10	0.19
15	020 COLOR:NAMING			1.00	0.79	0.30
16	021 COLOR:IDFYING				1.00	0.23
17	R201 WORD MEAN:MRT					1.00

(continued)

Table A2.2 (fifth page) -- C. MRT Scales (continued)

		18	19	20	21	22
1	002 GEO SHAP:NAME	0.22	0.18	0.25	0.28	0.19
2	003 GEO SHAP:IDFY	0.24	0.14	0.16	0.26	0.13
3	004 COUNT BUTTONS	0.40	0.43	0.43	0.57	0.42
4	005 WRITE NUMERALS	0.22	0.30	0.34	0.40	0.35
5	006 COUNT MEMS:PC	0.32	0.36	0.33	0.45	0.33
6	007 IDFY NUMERALS	0.38	0.41	0.51	0.57	0.39
7	008 VIS MEMRY:OBJS	0.07	0.06	-0.00	0.05	0.04
8	010 VOCABULARY	0.42	0.28	0.36	0.43	0.27
9	012 EQIV SETS:DOTS	0.32	0.36	0.23	0.39	0.32
10	013 ORDINAL NUMBER	0.30	0.31	0.24	0.45	0.31
11	014 ORDRG:GEO SHAP	0.25	0.30	0.19	0.32	0.34
12	015 CLASSIFYING	0.37	0.35	0.25	0.47	0.32
13	016 ROTE COUNTING	0.20	0.26	0.29	0.44	0.31
14	017 VIS MEMRY:PICT	0.19	0.14	0.08	0.16	0.09
15	020 COLOR:NAMING	0.30	0.27	0.39	0.35	0.27
16	021 COLOR:IDFYING	0.24	0.25	0.32	0.34	0.22
17	R201 WORD MEAN:MRT	0.58	0.41	0.37	0.52	0.37
18	R202 LISTENING:MRT	1.00	0.45	0.38	0.53	0.34
19	R203 MATCHING:MRT		1.00	0.44	0.58	0.47
20	R204 ALPHABET:MRT			1.00	0.56	0.38
21	R205 NUMBERS:MRT				1.00	0.49
22	R206 COPYING:MRT					1.00

Table A2.4
Correlations of End-of-Kindergarten Subpopulation Scales and Beginning-of-Kindergarten Scales
Total Sample

A. X-Population Scales

		1	2	3	4	5	6	7	8	9	10	11	12
1	CC2 GEO SHAP:NAME	1.00	0.54	0.27	0.15	0.19	0.27	0.05	0.35	0.17	0.25	0.23	0.38
2	CC3 GEO SHAP:IDFY		1.00	0.30	0.13	0.22	0.30	0.13	0.35	0.17	0.23	0.26	0.43
3	CC4 CCUNT BUTTONS			1.00	0.44	0.56	0.69	-0.02	0.52	0.46	0.51	0.32	0.51
4	CC5 WRITE NUMERALS				1.00	0.23	0.51	0.05	0.21	0.22	0.31	0.26	0.28
5	CC6 CCUNT MEMS:PC					1.00	0.50	0.00	0.39	0.34	0.30	0.24	0.45
6	CC7 IDFY NUMERALS						1.00	-0.01	0.46	0.41	0.47	0.29	0.48
7	CC8 VIS MEMRY:OBJS							1.00	0.03	0.04	0.03	0.10	0.08
8	C10 VOCABULARY								1.00	0.31	0.48	0.33	0.44
9	C12 EQIV SETS:DOTS									1.00	0.39	0.26	0.44
10	C13 ORDINAL NUMBER										1.00	0.36	0.42
11	014 ORDRG:GEO SHAP											1.00	0.33
12	C15 CLASSIFYING												1.00

		13	14	15	16	17	18	19	20
1	CC2 GEO SHAP:NAME	0.26	0.03	0.28	0.22	0.17	0.26	0.23	0.25
2	CC3 GEO SHAP:IDFY	0.25	0.12	0.26	0.24	0.26	0.28	0.34	0.31
3	CC4 CCUNT BUTTONS	0.43	0.14	0.47	0.40	0.56	0.35	0.46	0.47
4	CC5 WRITE NUMERALS	0.32	0.08	0.26	0.19	0.25	0.29	0.31	0.17
5	CC6 CCUNT MEMS:PC	0.29	0.18	0.35	0.34	0.41	0.25	0.38	0.38
6	CC7 IDFY NUMERALS	0.46	0.12	0.45	0.37	0.46	0.46	0.55	0.46
7	CC8 VIS MEMRY:OBJS	0.04	0.12	-0.05	-0.02	0.03	-0.00	0.05	0.04
8	C10 VOCABULARY	0.32	0.10	0.41	0.44	0.43	0.16	0.37	0.63
9	C12 EQIV SETS:DOTS	0.23	0.23	0.22	0.20	0.37	0.22	0.30	0.39
10	C13 ORDINAL NUMBER	0.44	0.10	0.30	0.24	0.32	0.26	0.33	0.41
11	014 ORDRG:GEO SHAP	0.22	0.14	0.17	0.15	0.25	0.16	0.18	0.29
12	C15 CLASSIFYING	0.39	0.16	0.38	0.33	0.38	0.24	0.37	0.42
13	C16 ROTE CCUNTING	1.00	0.10	0.30	0.27	0.31	0.31	0.32	0.29
14	017 VIS MEMRY:PICT		1.00	0.03	-0.01	0.24	0.09	0.15	0.25
15	C2C CCLCR:NAMING			1.00	0.77	0.32	0.32	0.48	0.38
16	021 CCLCR:IDFYING				1.00	0.30	0.24	0.37	0.32
17	106 CCUNT BUTNS					1.00	0.45	0.62	0.47
18	108 WRITE NUMERALS						1.00	0.60	0.28
19	113 IDFY NUMERALS							1.00	0.39
20	117 VCCABULARY								1.00

(continued)

Table A2.3

Means and Standard Deviations by Subpopulation
of Beginning-of-Kindergarten Scales and End-of-Kindergarten Common Scales

Scales	X-Population		Y-Population		Z-Population	
	MN	SD	MN	SD	MN	SD
K-01 Scales						
002	1.45	1.15	1.52	1.09	1.43	1.14
003	2.51	1.29	2.43	1.29	2.48	1.21
004	4.53	2.55	4.44	2.59	4.16	2.61
005	1.17	1.98	1.06	1.92	1.07	1.96
006	4.27	2.86	3.96	2.85	4.05	2.97
007	4.47	3.07	4.47	3.02	4.26	3.03
008	3.21	1.27	3.21	1.17	3.21	1.34
010	14.77	3.01	14.81	2.82	14.65	2.95
012	3.26	2.17	3.05	2.13	3.12	2.10
013	3.57	1.79	3.61	1.80	3.58	1.87
014	.83	.86	.82	.89	.77	.84
015	4.29	2.07	4.36	1.86	4.20	1.97
016	1.53	1.47	1.48	1.51	1.54	1.58
017	1.09	1.02	1.08	1.03	1.16	1.05
020	6.03	1.79	5.83	1.84	5.71	1.92
021	5.34	1.50	5.16	1.65	5.04	1.74
K-02 Scales						
104	4.49	.89	4.46	.97	4.52	.86
110	6.69	2.84	6.49	2.97	6.50	2.80
111	7.41	2.68	7.46	2.70	7.56	2.47
118	4.23	1.97	4.30	1.87	4.52	1.81
119	4.83	1.60	4.79	1.66	4.97	1.45
130	5.39	1.09	5.40	1.18	5.30	1.28
147	5.95	3.78	6.16	3.64	5.71	3.76
(Sample Sizes)	(N = 280)		(N = 252)		(N = 263)	

Table A2.4 (second page) -- B. Y-Population Scales

		1	2	3	4	5	6	7	8	9	10	11	12
1	CC2 GEO SHAP:NAME	1.00	0.58	0.31	0.21	0.20	0.34	0.12	0.31	0.25	0.31	0.13	0.31
2	CC3 GEC SHAP:IDFY		1.00	0.28	0.21	0.24	0.31	0.13	0.35	0.21	0.21	0.18	0.37
3	CC4 CCUNT BUTTONS			1.00	0.43	0.56	0.68	-0.08	0.46	0.50	0.49	0.29	0.39
4	CC5 WRITE NUMERALS				1.00	0.39	0.49	0.11	0.24	0.17	0.43	0.27	0.31
5	CC6 CCUNT MEMS:PC					1.00	0.47	-0.08	0.31	0.41	0.25	0.29	0.38
6	CC7 IDFY NUMERALS						1.00	-0.08	0.42	0.41	0.44	0.37	0.43
7	CC8 VIS MEMRY:OBJS							1.00	0.05	-0.09	0.06	0.04	0.02
8	C1C VOCABULARY								1.00	0.39	0.44	0.30	0.49
9	C12 EQIV SETS:DOTS									1.00	0.36	0.37	0.35
10	C13 ORDINAL NUMBER										1.00	0.32	0.40
11	C14 ORDRG:GEC SHAP											1.00	0.36
12	C15 CLASSIFYING												1.00

		13	14	15	16	17	18	19	20
1	CC2 GEO SHAP:NAME	0.27	0.22	0.34	0.28	0.18	0.21	0.25	0.24
2	CC3 GEO SHAP:IDFY	0.20	0.16	0.39	0.33	0.22	0.20	0.27	0.25
3	CC4 CCUNT BUTTONS	0.45	0.13	0.54	0.50	0.35	0.60	0.45	0.49
4	CC5 WRITE NUMERALS	0.48	0.14	0.27	0.25	0.21	0.37	0.24	0.23
5	CC6 CCUNT MEMS:PC	0.28	0.17	0.40	0.39	0.28	0.41	0.33	0.36
6	CC7 IDFY NUMERALS	0.42	0.10	0.55	0.47	0.35	0.51	0.39	0.38
7	CC8 VIS MEMRY:OBJS	-0.05	0.25	-0.04	-0.03	-0.01	-0.09	0.01	-0.01
8	C10 VOCABULARY	0.20	0.15	0.41	0.37	0.26	0.39	0.33	0.35
9	C12 EQIV SETS:DOTS	0.30	0.16	0.38	0.33	0.28	0.44	0.36	0.37
10	C13 ORDINAL NUMBER	0.42	0.11	0.28	0.24	0.19	0.42	0.19	0.24
11	C14 CRDRG:GEO SHAP	0.18	0.04	0.29	0.30	0.13	0.40	0.21	0.26
12	C15 CLASSIFYING	0.30	0.21	0.47	0.40	0.24	0.36	0.36	0.37
13	C16 ROTE COUNTING	1.00	0.07	0.33	0.29	0.20	0.47	0.31	0.32
14	C17 VIS MEMRY:PICT		1.00	0.11	0.10	0.01	0.14	0.15	0.08
15	C2C COLOR:NAMING			1.00	0.82	0.38	0.45	0.44	0.47
16	021 COLOR:IDFYING				1.00	0.36	0.41	0.40	0.42
17	1C2 GEC SHAP:NAME					1.00	0.27	0.40	0.49
18	12C ORDNAL NUMBERS						1.00	0.42	0.48
19	128 CLASSIFYING-S1							1.00	0.88
20	129 CLASSIFYING								1.00

(continued)

Table A2.4 (third page) -- C. Z-Population Scales

		1	2	3	4	5	6	7	8	9	10	11	12
1	CC2 GEC SHAP:NAME	1.00	0.46	0.26	0.30	0.24	0.30	0.06	0.33	0.20	0.31	0.14	0.42
2	CC3 GEO SHAP:IDFY		1.00	0.26	0.21	0.25	0.22	0.06	0.29	0.26	0.20	0.15	0.41
3	CC4 COUNT BUTTONS			1.00	0.42	0.56	0.64	0.11	0.43	0.45	0.46	0.38	0.45
4	CC5 WRITE NUMERALS				1.00	0.42	0.53	0.15	0.27	0.33	0.28	0.22	0.35
5	CC6 COUNT MEMS:PC					1.00	0.46	0.07	0.40	0.40	0.36	0.24	0.42
6	CC7 IDFY NUMERALS						1.00	0.10	0.43	0.43	0.45	0.34	0.44
7	CC8 VIS MEMRY:OBJS							1.00	0.10	0.12	0.04	0.01	0.13
8	C10 VOCABULARY								1.00	0.31	0.40	0.18	0.48
9	C12 EQIV SETS:DOTS									1.00	0.31	0.25	0.44
10	C13 ORDINAL NUMBER										1.00	0.35	0.48
11	C14 ORDRG:GEO SHAP											1.00	0.33
12	C15 CLASSIFYING												1.00

		13	14	15	16	17	18	19
1	CC2 GEO SHAP:NAME	0.21	0.14	0.20	0.15	0.16	0.19	0.19
2	CC3 GEO SHAP:IDFY	0.13	0.21	0.20	0.24	0.20	0.12	0.27
3	CC4 COUNT BUTTONS	0.54	0.18	0.45	0.44	0.51	0.54	0.54
4	CC5 WRITE NUMERALS	0.44	0.21	0.19	0.14	0.29	0.32	0.34
5	CC6 COUNT MEMS:PC	0.38	0.18	0.41	0.38	0.35	0.40	0.42
6	CC7 IDFY NUMERALS	0.51	0.18	0.40	0.42	0.35	0.36	0.44
7	CC8 VIS MEMRY:OBJS	0.01	0.18	0.18	0.18	0.02	0.11	0.14
8	C10 VOCABULARY	0.37	0.20	0.32	0.35	0.35	0.35	0.39
9	C12 EQIV SETS:DOTS	0.34	0.07	0.29	0.22	0.26	0.32	0.39
10	C13 ORDINAL NUMBER	0.48	0.06	0.26	0.24	0.41	0.39	0.32
11	C14 ORDRG:GEO SHAP	0.22	0.03	0.15	0.15	0.38	0.32	0.24
12	C15 CLASSIFYING	0.35	0.19	0.32	0.30	0.40	0.38	0.36
13	C16 RCTE COUNTING	1.00	0.19	0.23	0.24	0.28	0.34	0.36
14	C17 VIS MEMRY:PICT		1.00	0.15	0.11	0.09	0.14	0.24
15	C20 COLOR:NAMING			1.00	0.85	0.28	0.32	0.26
16	C21 COLOR:IDFYING				1.00	0.30	0.31	0.27
17	137 ORDRG:SET OBJS					1.00	0.79	0.49
18	139 ORDR:PICT SETS						1.00	0.49
19	146 CNSRVATN CMPOS							1.00

TABLE A2.5
CORRELATIONS WITHIN CELLS
OF END-OF-KINDERGARTEN COMMON SCALES AND BEGINNING-OF-KINDERGARTEN SCALES
SELECTED SAMPLE

MATHEMATICS SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.28	0.17	0.18	0.24	0.15	0.28	0.23	0.14	0.18	0.48	0.22	0.20	0.35	0.29
004 COUNT BUTTONS	2		1.00	0.47	0.59	0.68	-0.06	0.48	0.52	0.51	0.37	0.48	0.54	0.17	0.53	0.45
005 WRITE NUMERALS	3			1.00	0.31	0.52	0.06	0.26	0.32	0.43	0.27	0.30	0.53	0.14	0.25	0.19
006 COUNT MEMS:PC	4				1.00	0.51	-0.01	0.38	0.44	0.29	0.30	0.33	0.34	0.09	0.37	0.36
007 IDFY NUMERALS	5					1.00	-0.05	0.43	0.49	0.45	0.34	0.44	0.51	0.15	0.47	0.38
008 VIS MEMRY:OBJS	6						1.00	0.13	0.02	0.08	0.09	0.06	-0.05	0.06	0.00	0.01
010 VOCABULARY	7							1.00	0.36	0.44	0.28	0.51	0.35	0.25	0.43	0.37
012 EQIV SETS:DOTS	8								1.00	0.35	0.30	0.39	0.42	0.15	0.37	0.27
013 ORDINAL NUMBER	9									1.00	0.32	0.40	0.50	0.16	0.31	0.26
014 ORDRG:GEO SHAP	10										1.00	0.32	0.22	0.06	0.26	0.22
015 CLASSIFYING	11											1.00	0.42	0.23	0.48	0.41
016 ROTE COUNTING	12												1.00	0.14	0.34	0.29
017 VIS MEMRY:PICT	13													1.00	0.24	0.16
020 COLOR:NAMING	14														1.00	0.81
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21	22
003 GEO SHAP:IDFY	1	0.26	0.08	0.04	0.12	0.19	0.29	0.20
004 COUNT BUTTONS	2	0.25	0.46	0.39	0.52	0.50	0.43	0.44
005 WRITE NUMERALS	3	0.17	0.27	0.22	0.26	0.24	0.20	0.25
006 COUNT MEMS:PC	4	0.19	0.26	0.18	0.41	0.41	0.31	0.28
007 IDFY NUMERALS	5	0.19	0.34	0.33	0.49	0.49	0.34	0.39
008 VIS MEMRY:OBJS	6	0.12	0.03	-0.07	-0.03	-0.07	0.05	0.07
010 VOCABULARY	7	0.21	0.24	0.25	0.34	0.30	0.35	0.33
012 EQIV SETS:DOTS	8	0.24	0.32	0.24	0.45	0.45	0.29	0.41
013 ORDINAL NUMBER	9	0.21	0.31	0.27	0.33	0.27	0.25	0.33
014 ORDRG:GEO SHAP	10	0.21	0.21	0.16	0.30	0.27	0.27	0.37
015 CLASSIFYING	11	0.26	0.21	0.12	0.34	0.30	0.38	0.37
016 ROTE COUNTING	12	0.15	0.33	0.29	0.29	0.34	0.26	0.35
017 VIS MEMRY:PICT	13	0.14	0.12	0.11	0.17	0.21	0.15	0.08
020 COLOR:NAMING	14	0.31	0.19	0.21	0.35	0.33	0.35	0.31
021 COLOR:IDFYING	15	0.31	0.19	0.25	0.33	0.36	0.32	0.27
104 GEO SHAP:IDFY-	16	1.00	0.11	0.14	0.26	0.30	0.20	0.22
110 COUNT MEMS:PC	17		1.00	0.54	0.43	0.45	0.26	0.31
111 CNT MEMS:OBJS	18			1.00	0.53	0.55	0.24	0.25
113 EQIV SETS:OBJS	19				1.00	0.77	0.32	0.40
119 EQIV SETS:DOTS	20					1.00	0.36	0.43
130 CLASFY(OVRLAP)	21						1.00	0.32
147 ORDRG:COMPOS	22							1.00

N = 237 FOR CELL A1

(CONTINUED)

TABLE A2.5
(SECOND PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.24	0.17	0.18	0.25	0.12	0.32	0.27	0.20	0.17	0.31	0.11	0.15	0.31	0.24
004 COUNT BUTTONS	2		1.00	0.36	0.67	0.62	0.08	0.44	0.40	0.40	0.37	0.43	0.44	0.10	0.54	0.60
005 WRITE NUMERALS	3			1.00	0.35	0.46	0.10	0.26	0.25	0.29	0.28	0.35	0.34	0.04	0.19	0.19
006 COUNT MEMS:PC	4				1.00	0.52	0.11	0.36	0.33	0.31	0.35	0.36	0.38	0.12	0.39	0.30
007 IDFY NUMERALS	5					1.00	0.11	0.45	0.42	0.45	0.34	0.39	0.45	0.03	0.45	0.44
008 VIS MEMRY:OBJS	6						1.00	0.14	0.11	0.19	0.08	0.24	0.09	0.28	0.12	0.06
010 VOCABULARY	7							1.00	0.34	0.40	0.35	0.38	0.30	0.06	0.41	0.38
012 EQIV SETS:DOTS	8								1.00	0.29	0.31	0.43	0.23	0.14	0.28	0.22
013 ORDINAL NUMBER	9									1.00	0.32	0.46	0.53	0.03	0.32	0.26
014 ORDRG:GEO SHAP	10										1.00	0.34	0.27	0.20	0.25	0.24
015 CLASSIFYING	11											1.00	0.31	0.22	0.44	0.35
016 ROTE COUNTING	12												1.00	0.10	0.25	0.24
017 VIS MEMRY:PICT	13													1.00	0.15	0.07
020 COLOR:NAMING	14														1.00	0.80
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21	22
003 GEO SHAP:IDFY	1	0.07	0.08	0.07	0.15	0.18	0.18	0.24
004 COUNT BUTTONS	2	0.22	0.38	0.32	0.44	0.44	0.40	0.41
005 WRITE NUMERALS	3	0.11	0.27	0.32	0.26	0.27	0.14	0.19
006 COUNT MEMS:PC	4	0.20	0.41	0.41	0.37	0.42	0.27	0.34
007 IDFY NUMERALS	5	0.19	0.32	0.32	0.31	0.34	0.28	0.30
008 VIS MEMRY:OBJS	6	0.04	0.10	0.12	-0.01	0.05	0.10	0.13
010 VOCABULARY	7	0.10	0.13	0.08	0.21	0.27	0.30	0.23
012 EQIV SETS:DOTS	8	0.11	0.33	0.25	0.29	0.40	0.24	0.30
013 ORDINAL NUMBER	9	0.15	0.22	0.25	0.26	0.27	0.23	0.29
014 ORDRG:GEO SHAP	10	0.13	0.27	0.24	0.22	0.32	0.22	0.29
015 CLASSIFYING	11	0.19	0.30	0.22	0.33	0.37	0.35	0.35
016 ROTE COUNTING	12	0.14	0.21	0.22	0.24	0.21	0.16	0.20
017 VIS MEMRY:PICT	13	-0.05	0.07	0.03	0.11	0.09	0.07	0.15
020 COLOR:NAMING	14	0.19	0.25	0.29	0.35	0.38	0.36	0.34
021 COLOR:IDFYING	15	0.21	0.22	0.22	0.39	0.34	0.40	0.21
104 GEO SHAP:IDFY-	16	1.00	0.11	0.18	0.09	0.00	-0.01	-0.06
110 COUNT MEMS:PC	17		1.00	0.61	0.37	0.45	0.24	0.28
111 CNT MEMS:OBJS	18			1.00	0.42	0.42	0.17	0.34
118 EQIV SETS:OBJS	19				1.00	0.52	0.24	0.26
119 EQIV SETS:DOTS	20					1.00	0.41	0.32
130 CLASFY(OVRLAP)	21						1.00	0.41
147 ORDRG:CONFCS	22							1.00

N = 137 FOR CELL B1

(CONTINUED)

TABLE A2.5
(THIRD PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.22	0.13	0.28	0.29	0.09	0.33	0.20	0.20	0.11	0.40	0.22	0.16	0.23	0.22
004 COUNT BUTTONS	2		1.00	0.43	0.58	0.64	0.02	0.37	0.43	0.49	0.21	0.48	0.53	0.17	0.41	0.43
005 WRITE NUMERALS	3			1.00	0.38	0.54	0.11	0.25	0.23	0.32	0.15	0.31	0.42	0.15	0.28	0.24
006 COUNT MEMS:PC	4				1.00	0.46	0.05	0.31	0.46	0.38	0.15	0.48	0.41	0.25	0.38	0.37
007 IDFY NUMERALS	5					1.00	0.03	0.36	0.34	0.44	0.23	0.50	0.52	0.20	0.42	0.42
008 VIS MEMRY:OBJS	6						1.00	0.07	0.02	0.04	0.13	0.17	0.06	0.12	0.04	0.05
010 VOCABULARY	7							1.00	0.22	0.45	0.20	0.47	0.33	0.19	0.30	0.38
012 EQIV SETS:DOTS	8								1.00	0.27	0.18	0.35	0.21	0.20	0.20	0.17
013 ORDINAL NUMBER	9									1.00	0.33	0.43	0.38	0.10	0.22	0.25
014 ORDRG:GEO SHAP	10										1.00	0.33	0.18	0.01	0.16	0.22
015 CLASSIFYING	11											1.00	0.37	0.18	0.34	0.39
016 ROTE COUNTING	12												1.00	0.19	0.35	0.33
017 VIS MEMRY:PICT	13													1.00	0.07	0.07
020 COLOR:NAMING	14														1.00	0.83
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21	22
003 GEO SHAP:IDFY	1	0.17	0.22	0.22	0.12	0.14	0.13	0.09
004 COUNT BUTTONS	2	0.13	0.39	0.32	0.34	0.45	0.34	0.49
005 WRITE NUMERALS	3	0.08	0.18	0.16	0.15	0.21	0.15	0.34
006 COUNT MEMS:PC	4	0.09	0.36	0.34	0.26	0.36	0.22	0.33
007 IDFY NUMERALS	5	0.15	0.30	0.27	0.23	0.30	0.27	0.35
008 VIS MEMRY:OBJS	6	0.02	0.17	0.11	0.02	0.11	0.04	0.08
010 VOCABULARY	7	0.17	0.24	0.23	0.24	0.25	0.27	0.29
012 EQIV SETS:DOTS	8	0.14	0.32	0.31	0.29	0.38	0.23	0.37
013 ORDINAL NUMBER	9	0.07	0.23	0.23	0.15	0.24	0.22	0.42
014 ORDRG:GEO SHAP	10	0.06	0.21	0.18	0.13	0.15	0.14	0.34
015 CLASSIFYING	11	0.09	0.30	0.28	0.28	0.30	0.30	0.41
016 ROTE COUNTING	12	0.13	0.31	0.28	0.26	0.33	0.21	0.30
017 VIS MEMRY:PICT	13	0.11	0.15	0.18	0.10	0.26	0.12	0.15
020 COLOR:NAMING	14	0.15	0.20	0.09	0.10	0.15	0.19	0.25
021 COLOR:IDFYING	15	0.13	0.25	0.17	0.16	0.22	0.20	0.26
104 GEO SHAP:IDFY-	16	1.00	0.16	0.14	0.10	0.11	0.08	0.17
110 COUNT MEMS:PC	17		1.00	0.69	0.43	0.43	0.27	0.28
111 CNT MEMS:OBJS	18			1.00	0.48	0.49	0.33	0.30
118 EQIV SETS:OBJS	19				1.00	0.59	0.27	0.30
119 EQIV SETS:DOTS	20					1.00	0.29	0.33
130 CLASFY(OVRLAP)	21						1.00	0.42
147 ORDRG:COMPOS	22							1.00

N = 274 FOR CELL C1

(CONTINUED)

TABLE A2.5
(FOURTH PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.18	0.21	0.13	0.05	0.14	0.28	0.15	0.21	0.19	0.38	0.19	0.15	0.33	0.28
004 COUNT BUTTONS	2		1.00	0.27	0.40	0.56	0.11	0.41	0.44	0.40	0.30	0.31	0.33	0.08	0.47	0.46
005 WRITE NUMERALS	3			1.00	0.20	0.37	0.09	0.22	0.24	0.32	0.26	0.32	0.49	0.13	0.18	0.15
006 COUNT MEMS:PC	4				1.00	0.32	0.10	0.22	0.32	0.09	0.05	0.42	0.32	0.10	0.35	0.31
007 IDFY NUMERALS	5					1.00	0.0	0.39	0.29	0.35	0.29	0.31	0.40	0.06	0.47	0.44
008 VIS MEMRY:OBJS	6						1.00	0.24	0.20	0.04	0.11	0.16	0.05	0.30	0.08	0.06
010 VOCABULARY	7							1.00	0.27	0.39	0.21	0.28	0.27	0.15	0.39	0.37
012 EQIV SETS:DOTS	8								1.00	0.43	0.39	0.35	0.31	0.07	0.40	0.35
013 ORDINAL NUMBER	9									1.00	0.32	0.37	0.55	0.02	0.24	0.17
014 ORDRG:GEO SHAP	10										1.00	0.27	0.22	-0.03	0.21	0.19
015 CLASSIFYING	11											1.00	0.43	0.14	0.42	0.33
016 ROTE COUNTING	12												1.00	0.10	0.13	0.15
017 VIS MEMRY:PICT	13													1.00	0.03	0.03
020 COLOR:NAMING	14														1.00	0.90
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21	22
003 GEO SHAP:IDFY	1	-0.05	0.08	0.08	0.10	0.06	0.20	0.11
004 COUNT BUTTONS	2	0.09	0.27	0.22	0.35	0.30	0.14	0.34
005 WRITE NUMERALS	3	-0.03	0.23	0.28	0.24	0.22	0.04	0.11
006 COUNT MEMS:PC	4	-0.01	0.31	0.28	0.26	0.33	0.11	0.13
007 IDFY NUMERALS	5	0.17	0.24	0.29	0.29	0.30	0.07	0.35
008 VIS MEMRY:OBJS	6	0.04	0.10	0.08	0.26	0.0	0.17	0.05
010 VOCABULARY	7	-0.08	0.17	0.23	0.33	0.25	0.32	0.29
012 EQIV SETS:DOTS	8	0.06	0.21	0.23	0.40	0.22	0.14	0.37
013 ORDINAL NUMBER	9	0.03	0.07	0.02	0.17	0.14	0.20	0.26
014 ORDRG:GEO SHAP	10	0.04	0.11	0.20	0.18	0.14	0.17	0.31
015 CLASSIFYING	11	0.06	0.15	0.19	0.21	0.31	0.16	0.25
016 ROTE COUNTING	12	-0.02	0.27	0.22	0.26	0.29	0.15	0.16
017 VIS MEMRY:PICT	13	-0.09	0.08	0.09	0.15	0.02	0.12	0.06
020 COLOR:NAMING	14	0.08	0.18	0.27	0.22	0.13	0.09	0.26
021 COLOR:IDFYING	15	0.09	0.14	0.29	0.23	0.15	0.06	0.18
104 GEO SHAP:IDFY-	16	1.00	0.02	0.12	0.07	0.03	0.01	-0.08
110 COUNT MEMS:PC	17		1.00	0.70	0.33	0.40	0.13	0.11
111 CNT MEMS:OBJS	18			1.00	0.37	0.38	0.07	0.17
118 EQIV SETS:OBJS	19				1.00	0.54	0.01	0.39
119 EQIV SETS:DOTS	20					1.00	0.10	0.22
130 CLASFY(OVRLAP)	21						1.00	0.16
147 ORDRG:COMPOS	22							1.00

N = 136 FOR CELL D1

(CONTINUED)

TABLE A2.5
(FIFTH PAGE)

MRT SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C03 GEO SHAP:IDFY	1	1.00	0.22	0.10	0.08	0.16	0.09	0.28	0.14	0.13	0.12	0.39	0.18	0.14	0.32	0.29
C04 COUNT BUTTONS	2		1.00	0.43	0.59	0.66	-0.01	0.53	0.50	0.52	0.40	0.43	0.57	0.18	0.56	0.49
C05 WRITE NUMERALS	3			1.00	0.27	0.51	-0.03	0.32	0.31	0.42	0.29	0.27	0.52	0.18	0.21	0.15
C06 COUNT MEMS:PC	4				1.00	0.48	0.01	0.39	0.43	0.24	0.23	0.26	0.32	0.06	0.35	0.39
C07 IDFY NUMERALS	5					1.00	0.00	0.41	0.51	0.44	0.34	0.37	0.52	0.09	0.45	0.41
C08 VIS MEMRY:OBJS	6						1.00	0.13	-0.00	0.06	0.10	0.01	-0.05	-0.01	0.05	0.10
C10 VOCABULARY	7							1.00	0.36	0.44	0.27	0.54	0.38	0.25	0.49	0.48
C12 EQIV SETS:DOTS	8								1.00	0.32	0.35	0.37	0.39	0.14	0.38	0.30
C13 ORDINAL NUMBER	9									1.00	0.35	0.46	0.45	0.18	0.32	0.29
C14 ORDRG:GEO SHAP	10										1.00	0.31	0.31	0.10	0.27	0.24
C15 CLASSIFYING	11											1.00	0.48	0.20	0.43	0.39
C16 ROTE COUNTING	12												1.00	0.13	0.33	0.31
C17 VIS MEMRY:PICT	13													1.00	0.19	0.13
C20 COLOR:NAMING	14														1.00	0.78
C21 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21
C03 GEO SHAP:IDFY	1	0.25	0.19	0.20	0.19	0.28	0.17
C04 COUNT BUTTONS	2	0.37	0.42	0.43	0.54	0.61	0.42
C05 WRITE NUMERALS	3	0.28	0.26	0.31	0.40	0.38	0.36
C06 COUNT MEMS:PC	4	0.34	0.39	0.25	0.40	0.45	0.32
C07 IDFY NUMERALS	5	0.32	0.44	0.44	0.63	0.65	0.39
C08 VIS MEMRY:OBJS	6	0.07	0.10	0.10	0.03	0.06	0.10
C10 VOCABULARY	7	0.43	0.45	0.42	0.48	0.48	0.27
C12 EQIV SETS:DOTS	8	0.28	0.32	0.35	0.40	0.47	0.44
C13 ORDINAL NUMBER	9	0.31	0.32	0.37	0.38	0.53	0.26
C14 ORDRG:GEO SHAP	10	0.20	0.19	0.25	0.23	0.34	0.29
C15 CLASSIFYING	11	0.35	0.32	0.32	0.34	0.46	0.34
C16 ROTE COUNTING	12	0.30	0.24	0.31	0.44	0.49	0.36
C17 VIS MEMRY:PICT	13	0.36	0.29	0.18	0.13	0.22	0.08
C20 COLOR:NAMING	14	0.36	0.36	0.33	0.49	0.40	0.31
C21 COLOR:IDFYING	15	0.28	0.34	0.35	0.41	0.47	0.22
R201 WORD MEAN:MRT	16	1.00	0.60	0.49	0.50	0.50	0.34
R202 LISTENING:MRT	17		1.00	0.53	0.53	0.56	0.37
R203 MATCHING:MRT	18			1.00	0.56	0.61	0.43
R204 ALPHABET:MRT	19				1.00	0.67	0.49
R205 NUMBERS:MRT	20					1.00	0.48
R206 COPYING:MRT	21						1.00

N = 143 FOR CELL A1

(CONTINUED)

TABLE A2.5
(SIXTH PAGE)

MRT SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.17	0.08	0.20	0.22	-0.02	0.20	0.29	0.03	0.06	0.27	-0.03	-0.00	0.19	0.10
004 COUNT BUTTONS	2		1.00	0.28	0.65	0.61	0.06	0.39	0.38	0.34	0.30	0.39	0.42	0.19	0.47	0.36
005 WRITE NUMERALS	3			1.00	0.36	0.41	0.15	0.21	0.19	0.01	0.20	0.27	0.08	0.14	0.14	0.17
006 COUNT MEMS:PC	4				1.00	0.52	0.11	0.34	0.26	0.28	0.25	0.28	0.36	0.17	0.35	0.32
007 IDFY NUMERALS	5					1.00	0.15	0.41	0.34	0.39	0.23	0.34	0.40	0.21	0.39	0.39
008 VIS MEMRY:OBJS	6						1.00	0.11	0.04	0.26	0.10	0.24	0.09	0.24	0.25	0.16
010 VOCABULARY	7							1.00	0.32	0.34	0.33	0.28	0.32	0.08	0.31	0.28
012 EQIV SETS:DOTS	8								1.00	0.20	0.21	0.44	0.18	0.25	0.29	0.22
013 ORDINAL NUMBER	9									1.00	0.32	0.30	0.50	0.12	0.25	0.15
014 ORDRG:GEO SHAP	10										1.00	0.35	0.27	0.36	0.16	0.22
015 CLASSIFYING	11											1.00	0.32	0.34	0.38	0.25
016 ROTE COUNTING	12												1.00	0.23	0.19	0.19
017 VIS MEMRY:PICT	13													1.00	0.23	0.15
020 COLOR:NAMING	14														1.00	0.69
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21
003 GEO SHAP:IDFY	1	0.15	0.22	0.28	0.20	0.21	0.01
004 COUNT BUTTONS	2	0.24	0.24	0.41	0.40	0.55	0.30
005 WRITE NUMERALS	3	0.17	0.19	0.22	0.33	0.24	0.28
006 COUNT MEMS:PC	4	0.20	0.24	0.43	0.29	0.51	0.41
007 IDFY NUMERALS	5	0.17	0.24	0.31	0.49	0.49	0.28
008 VIS MEMRY:OBJS	6	0.08	0.15	0.06	0.10	0.18	-0.10
010 VOCABULARY	7	0.31	0.47	0.12	0.38	0.32	0.12
012 EQIV SETS:DOTS	8	0.28	0.38	0.44	0.25	0.33	0.30
013 ORDINAL NUMBER	9	0.14	0.17	0.20	0.25	0.40	0.15
014 ORDRG:GEO SHAP	10	0.32	0.29	0.17	0.26	0.26	0.30
015 CLASSIFYING	11	0.35	0.29	0.27	0.10	0.40	0.18
016 ROTE COUNTING	12	0.09	0.10	0.28	0.27	0.42	0.21
017 VIS MEMRY:PICT	13	0.17	0.23	0.21	0.11	0.24	0.09
020 COLOR:NAMING	14	0.29	0.18	0.30	0.35	0.43	0.18
021 COLOR:IDFYING	15	0.25	0.17	0.26	0.31	0.31	0.28
R201 WORD MEAN:MRT	16	1.00	0.53	0.27	0.25	0.39	0.15
R202 LISTENING:MRT	17		1.00	0.35	0.24	0.31	0.12
R203 MATCHING:MRT	18			1.00	0.34	0.45	0.32
R204 ALPHABET:MRT	19				1.00	0.45	0.18
R205 NUMBERS:MRT	20					1.00	0.24
R206 COPYING:MRT	21						1.00

N = 117 FOR CELL B1

(CONTINUED)

TABLE A2.5
(SEVENTH PAGE)

MRT SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.15	0.07	0.20	0.28	0.08	0.35	0.08	0.15	0.10	0.37	0.18	0.13	0.14	0.20
004 COUNT BUTTONS	2		1.00	0.44	0.58	0.66	-0.01	0.31	0.39	0.49	0.22	0.48	0.49	0.23	0.40	0.44
005 WRITE NUMERALS	3			1.00	0.39	0.56	0.09	0.30	0.22	0.38	0.16	0.33	0.43	0.16	0.29	0.29
006 COUNT MEMS:PC	4				1.00	0.46	0.08	0.24	0.46	0.37	0.19	0.46	0.37	0.27	0.37	0.32
007 IDFY NUMERALS	5					1.00	-0.01	0.29	0.32	0.44	0.21	0.51	0.48	0.21	0.40	0.40
008 VIS MEMRY:OBJS	6						1.00	0.09	0.06	0.10	.6	0.15	-0.00	0.09	0.05	0.07
010 VOCABULARY	7							1.00	0.18	0.46	.16	0.45	0.36	0.24	0.24	0.31
012 EQIV SETS:DOTS	8								1.00	0.28	0.24	0.32	0.14	0.22	0.14	0.13
013 ORDINAL NUMBER	9									1.00	0.31	0.51	0.41	0.12	0.20	0.22
014 ORDRG:GEO SHAP	10										1.00	0.37	0.13	0.05	0.12	0.17
015 CLASSIFYING	11											1.00	0.32	0.25	0.31	0.35
016 ROTE COUNTING	12												1.00	0.27	0.30	0.28
017 VIS MEMRY:PICT	13													1.00	0.12	0.12
C20 COLOR:NAMING	14														1.00	0.82
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21
003 GEO SHAP:IDFY	1	0.15	0.23	0.05	0.18	0.23	0.12
C04 COUNT BUTTONS	2	0.30	0.27	0.41	0.27	0.52	0.40
005 WRITE NUMERALS	3	0.27	0.20	0.36	0.25	0.53	0.34
006 COUNT MEMS:PC	4	0.20	0.30	0.45	0.29	0.44	0.29
007 IDFY NUMERALS	5	0.24	0.26	0.34	0.33	0.50	0.31
008 VIS MEMRY:OBJS	6	0.00	0.10	0.25	0.12	0.23	0.16
010 VOCABULARY	7	0.32	0.25	0.16	0.29	0.35	0.22
012 EQIV SETS:DOTS	8	0.17	0.24	0.39	0.14	0.34	0.3
013 ORDINAL NUMBER	9	0.37	0.27	0.36	0.06	0.45	0.35
C14 ORDRG:GEO SHAP	10	0.21	0.13	0.27	0.04	0.27	0.34
015 CLASSIFYING	11	0.40	0.36	0.44	0.12	0.52	0.43
C16 ROTE COUNTING	12	0.31	0.18	0.25	0.15	0.38	0.32
017 VIS MEMRY:PICT	13	0.15	0.22	0.15	0.18	0.19	0.16
C20 COLOR:NAMING	14	0.12	0.19	0.19	0.28	0.26	0.24
021 COLOR:IDFYING	15	0.14	0.16	0.24	0.39	0.35	0.27
R201 WORD MEAN:MRT	16	1.00	0.46	0.26	0.14	0.37	0.33
R202 LISTENING:MRT	17		1.00	0.38	0.28	0.51	0.39
R203 MATCHING:MRT	18			1.00	0.29	0.61	0.48
R204 ALPHABET:MRT	19				1.00	0.39	0.27
R205 NUMBERS:MRT	20					1.00	0.52
R206 COPYING:MRT	21						1.00

N = 156 FOR CELL C1

(CONTINUED)

TABLE A2.5
(EIGHTH PAGE)

MRT SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C03 GEO SHAP:IDFY	1	1.00	0.03	0.08	0.06	0.00	0.04	0.26	-0.02	0.10	0.17	0.18	0.10	0.05	0.29	0.25
C04 COUNT BUTTONS	2		1.00	0.27	0.31	0.60	0.05	0.36	0.53	0.46	0.33	0.31	0.34	0.09	0.39	0.38
C05 WRITE NUMERALS	3			1.00	0.20	0.36	0.10	0.33	0.20	0.33	0.28	0.36	0.57	0.19	0.11	0.05
C06 COUNT MEMS:PC	4				1.00	0.36	0.15	0.24	0.32	0.09	0.02	0.44	0.33	0.07	0.35	0.27
C07 IDFY NUMERALS	5					1.00	0.03	0.47	0.37	0.36	0.32	0.36	0.41	0.14	0.39	0.34
C08 VIS MEMRY:OBJS	6						1.00	0.23	0.12	-0.02	0.08	0.19	0.07	0.22	0.10	0.03
C10 VOCABULARY	7							1.00	0.20	0.43	0.15	0.30	0.39	0.20	0.25	0.17
C12 EQIV SETS:DOTS	8								1.00	0.44	0.28	0.26	0.26	0.06	0.31	0.25
C13 ORDINAL NUMBER	9									1.00	0.25	0.38	0.58	0.02	0.11	0.05
C14 ORDRG:GEO SHAP	10										1.00	0.15	0.19	-0.06	0.17	0.10
C15 CLASSIFYING	11											1.00	0.45	0.12	0.34	0.17
C16 ROTE COUNTING	12												1.00	0.05	0.04	0.00
C17 VIS MEMRY:PICT	13													1.00	0.15	0.20
C20 COLOR:NAMING	14														1.00	0.85
C21 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21
C03 GEO SHAP:IDFY	1	0.15	0.24	-0.17	0.19	0.17	0.03
C04 COUNT BUTTONS	2	0.22	0.31	0.36	0.47	0.55	0.38
C05 WRITE NUMERALS	3	0.13	0.31	0.11	0.34	0.47	0.44
C06 COUNT MEMS:PC	4	0.11	0.20	0.09	0.30	0.34	0.20
C07 IDFY NUMERALS	5	0.27	0.41	0.39	0.68	0.66	0.43
C08 VIS MEMRY:OBJS	6	0.10	0.23	0.13	-0.04	0.01	0.17
C10 VOCABULARY	7	0.60	0.60	0.17	0.43	0.52	0.39
C12 EQIV SETS:DOTS	8	0.19	0.33	0.25	0.20	0.28	0.16
C13 ORDINAL NUMBER	9	0.27	0.36	0.23	0.26	0.32	0.33
C14 ORDRG:GEO SHAP	10	0.16	0.27	0.28	0.35	0.34	0.37
C15 CLASSIFYING	11	0.20	0.32	0.17	0.33	0.37	0.21
C16 ROTE COUNTING	12	0.20	0.33	0.24	0.30	0.49	0.40
C17 VIS MEMRY:PICT	13	0.01	0.08	-0.01	0.02	0.09	0.12
C20 COLOR:NAMING	14	0.16	0.34	0.13	0.51	0.31	0.20
C21 COLOR:IDFYING	15	0.12	0.24	0.10	0.47	0.26	0.21
R201 WORD MEAN:MRT	16	1.00	0.59	0.10	0.30	0.38	0.23
R202 LISTENING:MRT	17		1.00	0.25	0.41	0.51	0.33
R203 MATCHING:MRT	18			1.00	0.37	0.40	0.31
R204 ALPHABET:MRT	19				1.00	0.67	0.36
R205 NUMBERS:MRT	20					1.00	0.56
R206 COPYING:MRT	21						1.00

N = 74 FOR CELL D1

(CONTINUED)

TABLE A2.5
(NINTH PAGE)

WPSSI SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.29	0.18	0.20	0.26	0.15	0.29	0.24	0.15	0.19	0.49	0.24	0.20	0.36	0.30
004 COUNT BUTTONS	2		1.00	0.48	0.59	0.68	-0.05	0.48	0.51	0.52	0.37	0.49	0.55	0.18	0.53	0.45
005 WRITE NUMERALS	3			1.00	0.32	0.53	0.06	0.26	0.32	0.44	0.26	0.30	0.55	0.14	0.25	0.19
006 COUNT MEMS:PC	4				1.00	0.51	0.00	0.37	0.43	0.29	0.30	0.34	0.33	0.09	0.37	0.37
007 IDFY NUMERALS	5					1.00	-0.04	0.43	0.49	0.45	0.34	0.44	0.51	0.15	0.47	0.38
008 VIS MEMRY:OBJS	6						1.00	0.14	0.03	0.08	0.10	0.06	-0.03	0.06	0.01	0.07
010 VOCABULARY	7							1.00	0.36	0.43	0.28	0.50	0.34	0.24	0.43	0.
012 EQIV SETS:DOTS	8								1.00	0.35	0.30	0.40	0.41	0.15	0.37	0.27
013 ORDINAL NUMBER	9									1.00	0.33	0.39	0.50	0.17	0.32	0.26
014 ORDRG:GEO SHAP	10										1.00	0.32	0.22	0.05	0.27	0.23
015 CLASSIFYING	11											1.00	0.42	0.23	0.48	0.42
016 ROTE COUNTING	12												1.00	0.14	0.34	0.29
017 VIS MEMRY:PICT	13													1.00	0.23	0.16
020 COLOR:NAMING	14														1.00	0.81
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.26	0.26	0.16	0.15
004 COUNT BUTTONS	2	0.37	0.30	0.22	0.29
005 WRITE NUMERALS	3	0.31	0.14	0.18	0.23
006 COUNT MEMS:PC	4	0.35	0.26	0.22	0.32
007 IDFY NUMERALS	5	0.43	0.34	0.24	0.34
008 VIS MEMRY:OBJS	6	0.12	0.09	0.13	0.06
010 VOCABULARY	7	0.45	0.35	0.22	0.27
012 EQIV SETS:DOTS	8	0.20	0.22	0.25	0.28
013 ORDINAL NUMBER	9	0.31	0.18	0.13	0.30
014 ORDRG:GEO SHAP	10	0.11	0.12	0.07	0.21
015 CLASSIFYING	11	0.36	0.28	0.19	0.29
016 ROTE COUNTING	12	0.35	0.23	0.17	0.19
017 VIS MEMRY:PICT	13	0.10	0.13	0.17	0.23
020 COLOR:NAMING	14	0.37	0.29	0.18	0.27
021 COLOR:IDFYING	15	0.30	0.25	0.19	0.29
M112 VOCB:WPSI SCA	16	1.00	0.46	0.46	0.40
M114 SIML:WPSI SCA	17		1.00	0.26	0.30
M117 P.CM:WPSI SCA	18			1.00	0.39
M120 BLKD:WPSI SCA	19				1.00

N = 231 FOR CELL A1

(CONTINUED)

TABLE A2.5
(TENTH PAGE)

WPSSI SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.20	0.15	0.18	0.23	0.11	0.29	0.27	0.14	0.14	0.30	0.05	0.14	0.27	0.21
004 COUNT BUTTONS	2		1.00	0.36	0.66	0.62	0.08	0.44	0.40	0.38	0.35	0.42	0.43	0.14	0.51	0.46
005 WRITE NUMERALS	3			1.00	0.37	0.46	0.10	0.25	0.25	0.26	0.30	0.34	0.32	0.07	0.18	0.19
006 COUNT MEMS:PC	4				1.00	0.52	0.10	0.39	0.33	0.30	0.34	0.35	0.38	0.15	0.37	0.36
007 IDFY NUMERALS	5					1.00	0.11	0.47	0.40	0.44	0.33	0.37	0.44	0.09	0.42	0.41
008 VIS MEMRY:OBJS	6						1.00	0.14	0.09	0.19	0.08	0.23	0.06	0.29	0.13	0.06
010 VOCABULARY	7							1.00	0.37	0.38	0.37	0.38	0.30	0.08	0.41	0.38
012 EQIV SETS:DOTS	8								1.00	0.30	0.30	0.43	0.22	0.17	0.27	0.23
013 ORDINAL NUMBER	9									1.00	0.33	0.43	0.49	0.02	0.30	0.24
014 ORDRG:GEO SHAP	10										1.00	0.35	0.27	0.20	0.22	0.22
015 CLASSIFYING	11											1.00	0.28	0.23	0.45	0.35
016 ROTE COUNTING	12												1.00	0.09	0.23	0.22
017 VIS MEMRY:PICT	13													1.00	0.21	0.13
020 COLOR:NAMING	14														1.00	0.39
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.27	0.18	0.18	0.20
004 COUNT BUTTONS	2	0.17	0.19	0.25	0.43
005 WRITE NUMERALS	3	0.09	0.04	0.10	0.22
006 COUNT MEMS:PC	4	0.10	0.13	0.16	0.34
007 IDFY NUMERALS	5	0.17	0.20	0.17	0.34
008 VIS MEMRY:OBJS	6	0.06	0.18	0.04	0.05
010 VOCABULARY	7	0.30	0.23	0.28	0.29
012 EQIV SETS:DOTS	8	0.18	0.04	0.29	0.35
013 ORDINAL NUMBER	9	0.11	0.22	0.11	0.30
014 ORDRG:GEO SHAP	10	0.14	0.14	0.20	0.26
015 CLASSIFYING	11	0.34	0.22	0.12	0.27
016 ROTE COUNTING	12	0.04	0.07	0.15	0.18
017 VIS MEMRY:PICT	13	0.16	0.10	0.24	0.01
020 COLOR:NAMING	14	0.23	0.30	0.09	0.22
021 COLOR:IDFYING	15	0.19	0.26	0.09	0.24
M112 VOCB:WPSI SCA	16	1.00	0.28	0.31	0.19
M114 SIML:WPSI SCA	17		1.00	0.02	0.18
M117 P.CM:WPSI SCA	18			1.00	0.24
M120 BLKD:WPSI SCA	19				1.00

N = 186 FOR CELL B1

(CONTINUED)

TABLE A2.5
(ELEVENTH PAGE)

WPSSI SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.21	0.14	0.27	0.28	0.05	0.33	0.17	0.19	0.12	0.37	0.21	0.17	0.22	0.23
C04 COUNT BUTTONS	2		1.00	0.41	0.55	0.62	0.01	0.35	0.41	0.49	0.21	0.48	0.52	0.15	0.41	0.41
005 WRITE NUMERALS	3			1.00	0.36	0.53	0.12	0.26	0.23	0.34	0.17	0.35	0.44	0.16	0.27	0.25
006 COUNT MEMS:PC	4				1.00	0.44	0.03	0.31	0.44	0.39	0.15	0.50	0.41	0.23	0.39	0.37
0C7 IDFY NUMERALS	5					1.00	0.02	0.34	0.32	0.44	0.23	0.51	0.51	0.18	0.40	0.40
008 VIS MEMRY:OBJS	6						1.00	0.05	-0.00	0.03	0.14	0.14	0.05	0.12	0.02	0.04
010 VOCABULARY	7							1.00	0.20	0.42	0.20	0.46	0.32	0.18	0.26	0.35
012 EQIV SETS:DOTS	8								1.00	0.25	0.19	0.33	0.19	0.19	0.20	0.16
013 ORDINAL NUMBER	9									1.00	0.32	0.44	0.39	0.09	0.19	0.22
014 ORDRG:GEO SHAP	10										1.00	0.34	0.17	0.00	0.15	0.21
015 CLASSIFYING	11											1.00	0.34	0.19	0.35	0.38
016 ROTE COUNTING	12												1.00	0.18	0.34	0.31
017 VIS MEMRY:PICT	13													1.00	0.05	0.05
020 COLOR:NAMING	14														1.00	0.83
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.20	0.15	0.16	0.18
C04 COUNT BUTTONS	2	0.25	0.17	0.28	0.35
005 WRITE NUMERALS	3	0.11	0.11	0.22	0.20
0C6 COUNT MEMS:PC	4	0.30	0.19	0.27	0.32
0C7 IDFY NUMERALS	5	0.17	0.11	0.25	0.24
008 VIS MEMRY:OBJS	6	0.09	0.14	0.12	0.19
C10 VOCABULARY	7	0.36	0.14	0.20	0.19
012 EQIV SETS:DOTS	8	0.21	0.07	0.32	0.38
013 ORDINAL NUMBER	9	0.19	0.03	0.21	0.23
014 ORDRG:GEO SHAP	10	0.11	0.04	0.24	0.25
015 CLASSIFYING	11	0.24	0.19	0.37	0.33
016 ROTE COUNTING	12	0.28	0.17	0.14	0.16
017 VIS MEMRY:PICT	13	0.21	0.15	0.06	0.11
020 COLOR:NAMING	14	0.17	0.18	0.14	0.19
021 COLOR:IDFYING	15	0.19	0.12	0.16	0.24
M112 VOCB:WPSI SCA	16	1.00	0.38	0.33	0.26
M114 SIML:WPSI SCA	17		1.00	0.14	0.23
M117 P.CM:WPSI SCA	18			1.00	0.37
M120 BLKD:WPSI SCA	19				1.00

N = 257 FOR CELL C1

(CONTINUED)

TABLE A2.5
(TWELFTH PAGE)

WPSSI SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.15	0.19	0.13	0.02	0.15	0.28	0.18	0.18	0.28	0.36	0.15	0.13	0.32	0.28
004 COUNT BUTTONS	2		1.00	0.28	0.41	0.54	0.12	0.43	0.49	0.43	0.25	0.30	0.32	0.05	0.46	0.45
005 WRITE NUMERALS	3			1.00	0.18	0.35	0.09	0.24	0.22	0.34	0.25	0.34	0.51	0.17	0.18	0.14
006 COUNT MEMS:PC	4				1.00	0.37	0.11	0.28	0.35	0.14	0.06	0.42	0.36	0.05	0.37	0.32
007 IDFY NUMERALS	5					1.00	-0.02	0.36	0.28	0.35	0.21	0.32	0.41	0.06	0.46	0.42
008 VIS MEMRY:OBJS	6						1.00	0.27	0.15	0.07	0.14	0.14	0.06	0.29	0.01	-0.01
010 VOCABULARY	7							1.00	0.25	0.35	0.15	0.31	0.27	0.11	0.34	0.33
012 EQIV SETS:DOTS	8								1.00	0.47	0.37	0.35	0.32	0.03	0.40	0.32
013 ORDINAL NUMBER	9									1.00	0.30	0.40	0.59	0.04	0.21	0.15
014 ORDRG:GEO SHAP	10										1.00	0.24	0.20	-0.06	0.18	0.16
015 CLASSIFYING	11											1.00	0.42	0.11	0.42	0.32
016 ROTE COUNTING	12												1.00	0.10	0.12	0.13
017 VIS MEMRY:PICT	13													1.00	-0.03	0.01
020 COLOR:NAMING	14														1.00	0.90
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.24	0.24	0.29	0.16
004 COUNT BUTTONS	2	0.25	0.27	0.20	0.24
005 WRITE NUMERALS	3	0.15	0.02	0.20	0.17
006 COUNT MEMS:PC	4	0.38	0.19	0.08	0.16
007 IDFY NUMERALS	5	0.14	0.17	0.09	0.25
008 VIS MEMRY:OBJS	6	0.14	-0.01	0.00	0.04
010 VOCABULARY	7	0.46	0.40	0.14	0.19
012 EQIV SETS:DOTS	8	0.25	0.22	0.33	0.33
013 ORDINAL NUMBER	9	0.13	0.25	0.29	0.14
014 ORDRG:GEO SHAP	10	0.09	0.12	0.20	0.30
015 CLASSIFYING	11	0.25	0.21	0.24	0.14
016 ROTE COUNTING	12	0.16	0.26	0.19	0.08
017 VIS MEMRY:PICT	13	0.15	-0.10	0.10	0.18
020 COLOR:NAMING	14	0.19	0.17	0.10	0.02
021 COLOR:IDFYING	15	0.15	0.17	-0.03	-0.02
M112 VOCB:WPSI SCA	16	1.00	0.40	0.20	0.28
M114 SIML:WPSI SCA	17		1.00	0.29	0.16
M117 P.CM:WPSI SCA	18			1.00	0.33
M120 BLKD:WPSI SCA	19				1.00

N = 110 FOR CELL D1

Table A2.6
Regression Weights by Cell
for End-of-Kindergarten Common Scales
Using Beginning-of-Kindergarten Scales as Covariates
Selected Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 104 GEOMETRIC SHAPES: IDENTIFYING

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.416	0.135	0.234	0.145	0.259	0.246
006 COUNT MEMS:PC	0.008	0.258	0.170	0.211	0.146	0.146
012 EQIV SETS:DOTS	0.127	0.209	0.160	0.089	0.152	0.152

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.468	0.151	0.264	0.163	0.291	0.277
006 COUNT MEMS:PC	0.008	0.260	0.172	0.212	0.147	0.147
012 EQIV SETS:DOTS	0.175	0.288	0.220	0.123	0.209	0.209
RSQ	0.227	0.234	0.204	0.117	0.196	0.207
R	0.476	0.484	0.451	0.342	0.442	0.455
F	23.874	20.205	24.397	5.958	70.963	76.318
P	0.000	0.000	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 110 COUNTING MEMBERS OF A GIVEN SET: PICTURE CARDS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.076	0.138	0.045	0.075	0.079	0.088
012 EQIV SETS:DOTS	0.148	0.029	0.106	-0.005	0.089	0.099
020 COLOR:NAMING	0.217	0.139	0.129	0.087	0.156	0.159

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.027	0.049	0.016	0.027	0.028	0.031
012 EQIV SETS:DOTS	0.065	0.013	0.046	-0.002	0.039	0.044
020 COLOR:NAMING	0.103	0.066	0.062	0.041	0.074	0.076
RSQ	0.107	0.062	0.045	0.021	0.062	0.078
R	0.327	0.249	0.213	0.146	0.249	0.279
F	9.722	4.364	4.522	0.967	19.244	24.521
P	0.000	0.005	0.004	0.410	0.000	0.000

(continued)

Table A2.6
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 111 COUNTING MEMBERS OF A GIVEN SET: OBJECTS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.347	0.270	0.154	0.117	0.241	0.227
012 EQIV SETS:DOTS	0.036	0.150	0.249	0.146	0.151	0.145
016 ROTE COUNTING	0.118	0.065	0.221	0.112	0.107	0.103

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.368	0.286	0.163	0.125	0.255	0.241
012 EQIV SETS:DOTS	0.046	0.194	0.322	0.189	0.196	0.188
016 ROTE COUNTING	0.211	0.117	0.396	0.200	0.192	0.185
RSQ	0.167	0.152	0.170	0.087	0.146	0.149
R	0.409	0.390	0.412	0.295	0.382	0.385
F	16.227	11.839	19.095	4.200	49.196	50.247
P	0.000	0.000	0.000	0.007	0.000	0.000

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DEPENDENT VARIABLE -- 118 EQUIVALENT SETS: OBJECTS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.447	0.358	0.262	0.188	0.328	0.334
012 EQIV SETS:DOTS	0.261	0.132	0.220	0.300	0.230	0.238

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.337	0.270	0.198	0.142	0.247	0.251
012 EQIV SETS:DOTS	0.241	0.122	0.203	0.277	0.212	0.220
RSQ	0.320	0.223	0.153	0.192	0.217	0.249
R	0.565	0.472	0.391	0.439	0.466	0.499
F	57.569	28.533	25.911	16.196	121.268	144.852
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A2.6
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 110 EQUIVALENT SETS: DOTS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.389	0.199	0.283	0.146	0.282	0.273
006 COUNT MEMS:PC	0.133	0.172	0.074	0.188	0.130	0.131
012 EQIV SETS:DOTS	0.290	0.248	0.213	0.050	0.223	0.224

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.246	0.126	0.179	0.093	0.179	0.173
006 COUNT MEMS:PC	0.075	0.098	0.042	0.107	0.074	0.074
012 EQIV SETS:DOTS	0.225	0.192	0.165	0.039	0.173	0.174
RSQ	0.313	0.285	0.245	0.134	0.255	0.275
R	0.559	0.534	0.495	0.367	0.505	0.524
F	37.057	26.359	30.897	6.988	99.755	110.533
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 130 CLASSIFYING S-2

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.381	0.153	0.212	0.027	0.234	0.272
010 VOCABULARY	0.103	0.069	0.118	0.176	0.117	0.137
015 CLASSIFYING	0.263	0.116	0.154	0.060	0.158	0.176

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.182	0.073	0.101	0.013	0.111	0.130
010 VOCABULARY	0.041	0.028	0.047	0.070	0.047	0.055
015 CLASSIFYING	0.162	0.072	0.095	0.037	0.098	0.109
RSQ	0.226	0.217	0.173	0.108	0.175	0.231
R	0.476	0.466	0.416	0.329	0.418	0.481
F	23.795	18.293	19.973	5.466	61.793	87.789
P	0.000	0.000	0.000	0.001	0.000	0.000

(continued)

Table A2.6
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 147 ORDERING COMPOSITE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.220	0.230	0.292	0.203	0.259	0.297
012 EQIV SETS:DOTS	0.184	0.091	0.191	0.176	0.162	0.193
013 ORDINAL NUMBER	0.142	0.073	0.184	0.041	0.117	0.137
014 ORDRG:GEC SHAP	0.190	0.086	0.219	0.121	0.153	0.169

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.312	0.327	0.415	0.288	0.368	0.421
012 EQIV SETS:DOTS	0.320	0.158	0.332	0.306	0.281	0.335
013 ORDINAL NUMBER	0.297	0.154	0.385	0.085	0.244	0.286
014 ORDRG:GEC SHAP	0.826	0.376	0.952	0.526	0.668	0.738
RSQ	0.284	0.221	0.352	0.209	0.279	0.361
R	0.533	0.471	0.593	0.457	0.529	0.601
F	24.013	13.939	38.727	8.796	84.468	123.281
P	0.000	0.000	0.000	0.000	0.000	0.0

(continued)

Table A2.6
(fifth page)

B. WPPSI Scales

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DEPENDENT VARIABLE -- M112 WPPSI VOCABULARY SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.100	0.205	0.091	0.142	0.125	0.128
004 COUNT BLTTCNS	0.164	0.039	0.127	0.105	0.121	0.174
010 VOCABULARY	0.299	0.264	0.245	0.457	0.288	0.323

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.238	0.486	0.215	0.338	0.298	0.303
004 COUNT BLTTCNS	0.134	0.044	0.143	0.118	0.136	0.196
010 VOCABULARY	0.284	0.251	0.233	0.435	0.274	0.306
RSQ	0.245	0.131	0.171	0.239	0.184	0.246
R	0.495	0.362	0.413	0.489	0.428	0.496
F	25.370	9.273	13.274	11.153	60.474	87.577
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- M114 WPPSI SIMILARITIES SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.159	0.111	0.116	0.131	0.131	0.127
004 COUNT BUTTONS	0.142	0.113	0.136	0.161	0.132	0.157
010 VOCABULARY	0.255	0.134	0.075	0.315	0.172	0.183

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.361	0.253	0.263	0.294	0.299	0.284
004 COUNT BLTTCNS	0.153	0.119	0.114	0.173	0.142	0.169
010 VOCABULARY	0.232	0.167	0.066	0.247	0.157	0.167
RSQ	0.165	0.078	0.054	0.170	0.102	0.129
R	0.407	0.279	0.233	0.412	0.319	0.359
F	15.309	5.202	5.094	7.490	30.534	39.957
P	0.000	0.002	0.002	0.000	0.000	0.000

(continued)

Table A2.6
(sixth page)

B. WPPSI Scales (continued)

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DEPENDENT VARIABLE -- M117 WPPSI PICTURE COMPLETION SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BLTICNS	0.110	0.191	0.040	0.072	0.099	0.125
012 EQIV SETS:CCTS	0.171	0.284	0.189	0.254	0.202	0.222
015 CLASSIFYING	0.001	-0.054	0.262	0.087	0.113	0.123

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BLTICNS	0.112	0.193	0.040	0.073	0.101	0.128
012 EQIV SETS:CCTS	0.214	0.355	0.236	0.317	0.253	0.278
015 CLASSIFYING	0.081	-0.072	0.347	0.115	0.150	0.164
RSQ	0.078	0.110	0.187	0.094	0.108	0.148
R	0.279	0.332	0.432	0.307	0.328	0.384
F	6.742	7.099	20.769	3.802	32.904	47.264
P	0.000	0.000	0.000	0.012	0.000	0.000

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DEPENDENT VARIABLE -- M120 WPPSI BLOCK DESIGN SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1.	D1	POOLED	TOTAL
004 COUNT BLTICNS	0.098	0.264	0.170	0.139	0.158	0.167
006 COUNT MEMS:PC	0.173	0.067	0.121	0.043	0.116	0.126
012 EQIV SETS:CCTS	0.140	0.208	0.225	0.174	0.189	0.199
014 ORDRG:DEC SHAP	0.079	0.093	0.165	0.184	0.128	0.134

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BLTICNS	0.100	0.271	0.174	0.142	0.162	0.172
006 COUNT MEMS:PC	0.159	0.061	0.111	0.040	0.107	0.116
012 EQIV SETS:CCTS	0.184	0.262	0.284	0.219	0.238	0.251
014 ORDRG:DEC SHAP	0.250	0.294	0.520	0.582	0.404	0.421
RSQ	0.145	0.223	0.207	0.175	0.181	0.224
R	0.381	0.472	0.455	0.418	0.426	0.473
F	10.043	13.246	17.547	5.725	45.030	58.593
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A2.6
(seventh page)

B. WPPSI Scales (continued)

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DEPENDENT VARIABLE -- M123 WPPSI SHORT FORM TOTAL SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:ICFY	0.133	0.181	0.111	0.213	0.137	0.129
004 COUNT BLOCKS	0.194	0.177	0.184	0.094	0.176	0.204
010 VOCABULARY	0.287	0.227	0.146	0.333	0.218	0.239
012 EQIV SETS:OCTS	0.103	0.100	0.186	0.261	0.153	0.180
014 ORDRG:GEL SHAP	-0.047	0.085	0.102	0.060	0.060	0.073

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:ICFY	0.853	1.035	0.713	1.366	0.877	0.824
004 COUNT BLOCKS	0.586	0.537	0.558	0.285	0.532	0.619
010 VOCABULARY	0.739	0.584	0.376	0.856	0.560	0.614
012 EQIV SETS:OCTS	0.342	0.370	0.639	0.969	0.567	0.668
014 ORDRG:GEL SHAP	-0.344	0.792	0.948	0.557	0.557	0.675
RSQ	0.270	0.287	0.272	0.361	0.275	0.346
R	0.520	0.536	0.521	0.601	0.525	0.588
F	17.194	14.760	19.611	11.960	60.386	84.736
P	0.000	0.000	0.000	0.000	0.000	0.0

(continued)

Table A2.6
(eighth page)

C. MRT Scales

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DEPENDENT VARIABLE -- R201 MRT WORD MEANING RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.185	0.062	0.112	0.028	0.128	0.190
010 VOCABULARY	0.229	0.250	0.156	0.609	0.245	0.267
015 CLASSIFYING	0.176	0.244	0.237	0.007	0.139	0.222

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.212	0.071	0.129	0.032	0.147	0.218
010 VOCABULARY	0.217	0.236	0.147	0.575	0.231	0.252
015 CLASSIFYING	0.265	0.367	0.355	0.011	0.233	0.333
RSQ	0.231	0.222	0.210	0.403	0.225	0.303
R	0.481	0.471	0.459	0.635	0.475	0.550
F	15.458	11.195	14.652	16.190	50.448	75.393
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- R202 MRT LISTENING RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.314	0.009	0.123	0.166	0.190	0.218
010 VOCABULARY	0.293	0.453	0.087	0.559	0.275	0.280
015 CLASSIFYING	0.076	0.161	0.271	0.143	0.164	0.184

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.333	0.009	0.130	0.175	0.201	0.230
010 VOCABULARY	0.254	0.393	0.075	0.572	0.240	0.244
015 CLASSIFYING	0.105	0.222	0.374	0.198	0.227	0.255
RSQ	0.292	0.308	0.142	0.449	0.250	0.308
R	0.540	0.555	0.438	0.670	0.500	0.555
F	21.313	17.494	13.075	19.563	58.067	77.305
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A2.6
(ninth page)

C. MRT Scales (continued)

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DEPENDENT VARIABLE -- F203 MRT MATCHING RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.315	0.261	0.117	0.296	0.238	0.249
005 WRITE NUMERALS	0.109	0.072	0.172	-0.054	0.066	0.065
012 EQIV SETS:DOTS	0.127	0.312	0.222	0.086	0.197	0.211
014 ORDRG:GEO SHAP	0.049	0.007	0.082	0.130	0.061	0.067
015 CLASSIFYING	0.121	0.007	0.192	0.067	0.111	0.124

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.412	0.341	0.154	0.386	0.311	0.325
005 WRITE NUMERALS	0.209	0.139	0.329	-0.104	0.166	0.162
012 EQIV SETS:DOTS	0.202	0.496	0.354	0.137	0.314	0.335
014 ORDRG:GEO SHAP	0.197	0.028	0.331	0.526	0.246	0.269
015 CLASSIFYING	0.208	0.012	0.329	0.115	0.191	0.213
RSQ	0.240	0.272	0.299	0.219	0.247	0.304
R	0.490	0.522	0.546	0.468	0.497	0.551
F	9.656	8.600	13.706	3.863	33.849	44.977
P	0.000	0.000	0.000	0.004	0.000	0.000

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DEPENDENT VARIABLE -- F204 MRT ALPHABET RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
007 IDFY NUMERALS	0.504	0.335	0.218	0.483	0.368	0.362
010 VOCABULARY	0.217	0.217	0.158	0.133	0.187	0.149
020 COLOR:NAMING	0.215	0.193	0.139	0.343	0.189	0.188

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
007 IDFY NUMERALS	0.662	0.440	0.286	0.634	0.483	0.476
010 VOCABULARY	0.278	0.279	0.202	0.171	0.240	0.191
020 COLOR:NAMING	0.454	0.408	0.293	0.724	0.399	0.396
RSQ	0.444	0.334	0.195	0.543	0.335	0.320
R	0.666	0.578	0.442	0.737	0.579	0.566
F	40.754	19.698	13.348	28.144	87.202	81.431
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A2.6
(tenth page)

C. MRT Scales (continued)

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DEPENDENT VARIABLE -- 0205 MRT NUMBERS RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.244	0.275	0.245	0.242	0.256	0.261
007 IDFY NUMERALS	0.381	0.178	0.036	0.475	0.249	0.271
015 CLASSIFYING	0.241	0.172	0.272	0.059	0.201	0.222
016 ROTE COUNTING	0.058	0.130	0.140	0.166	0.125	0.114

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.394	0.448	0.395	0.393	0.413	0.421
007 IDFY NUMERALS	0.523	0.244	0.132	0.653	0.343	0.373
015 CLASSIFYING	0.312	0.365	0.376	0.116	0.427	0.470
016 ROTE COUNTING	0.161	0.358	0.384	0.457	0.344	0.314
RSQ	0.539	0.401	0.383	0.523	0.442	0.494
R	0.734	0.634	0.619	0.723	0.664	0.703
F	44.213	19.514	24.748	16.925	101.208	124.584
P	0.000	0.000	0.000	0.000	0.000	0.0

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DEPENDENT VARIABLE -- 0206 MRT COPYING RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.210	0.194	0.182	0.293	0.204	0.197
005 WRITE NUMERALS	0.203	0.114	0.176	0.259	0.169	0.171
012 EQIV SETS:CUTS	0.272	0.169	0.201	-0.118	0.148	0.192
014 ORDRG:DEC SHAP	0.332	0.151	0.236	0.167	0.166	0.164

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.195	0.180	0.169	0.474	0.139	0.183
005 WRITE NUMERALS	0.290	0.155	0.240	0.359	0.231	0.253
012 EQIV SETS:CUTS	0.368	0.191	0.227	-0.134	0.215	0.217
014 ORDRG:DEC SHAP	0.237	0.434	0.680	0.421	0.478	0.473
RSQ	0.295	0.196	0.258	0.310	0.247	0.272
R	0.534	0.443	0.508	0.557	0.497	0.522
F	15.162	7.070	14.071	7.748	42.046	46.117
P	0.000	0.000	0.000	0.000	0.000	0.000

TABLE A2.7
CORRELATIONS WITHIN CELLS
OF END-OF-KINDERGARTEN SUBPOPULATION SCALES AND BEGINNING-OF-KINDERGARTEN SCALES
SELECTED SAMPLE

X-POPULATION

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C03 GEO SHAP:IDFY	1	1.00	0.14	0.11	0.33	0.22	0.23	0.17	0.02	0.10	0.19	0.46	0.26	0.07	0.30	0.17
004 COUNT BUTTONS	2		1.00	0.57	0.50	0.67	-0.11	0.55	0.44	0.56	0.40	0.53	0.58	0.18	0.51	0.46
005 WRITE NUMERALS	3			1.00	0.47	0.56	-0.01	0.40	0.35	0.41	0.46	0.36	0.50	0.02	0.34	0.22
006 COUNT MEMS:PC	4				1.00	0.55	0.03	0.51	0.35	0.29	0.35	0.45	0.47	0.09	0.32	0.38
007 IDFY NUMERALS	5					1.00	-0.05	0.53	0.49	0.52	0.36	0.53	0.53	0.12	0.45	0.33
C08 VIS MEMRY:OBJS	6						1.00	0.09	-0.11	-0.06	0.18	0.05	-0.01	-0.16	-0.09	0.03
010 VOCABULARY	7							1.00	0.38	0.58	0.47	0.51	0.49	0.12	0.48	0.51
C12 EQIV SETS:DOTS	8								1.00	0.35	0.39	0.41	0.50	0.16	0.27	0.13
013 ORDINAL NUMBER	9									1.00	0.28	0.39	0.55	0.03	0.33	0.27
014 ORDRG:GEO SHAP	10										1.00	0.40	0.36	0.15	0.30	0.26
015 CLASSIFYING	11											1.00	0.55	0.10	0.44	0.43
016 ROTE COUNTING	12												1.00	0.21	0.38	0.30
017 VIS MEMRY:PICT	13													1.00	0.24	0.09
020 COLOR:NAMING	14														1.00	0.73
C21 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.06	0.28	0.29	0.05
004 COUNT BUTTONS	2	0.59	0.35	0.53	0.48
005 WRITE NUMERALS	3	0.37	0.24	0.41	0.31
006 COUNT MEMS:PC	4	0.35	0.30	0.40	0.42
007 IDFY NUMERALS	5	0.51	0.52	0.56	0.49
008 VIS MEMRY:OBJS	6	-0.07	0.00	-0.02	-0.02
010 VOCABULARY	7	0.47	0.28	0.43	0.68
012 EQIV SETS:DOTS	8	0.37	0.25	0.28	0.43
013 ORDINAL NUMBER	9	0.24	0.30	0.32	0.36
014 ORDRG:GEO SHAP	10	0.33	0.17	0.26	0.37
015 CLASSIFYING	11	0.48	0.49	0.51	0.38
016 ROTE COUNTING	12	0.44	0.38	0.42	0.43
017 VIS MEMRY:PICT	13	0.41	0.20	0.31	0.34
020 COLOR:NAMING	14	0.44	0.49	0.67	0.37
021 COLOR:IDFYING	15	0.45	0.39	0.52	0.40
106 COUNT BUTTNS	16	1.00	0.52	0.71	0.55
108 WRITE NUMERALS	17		1.00	0.73	0.23
113 IDFY NUMERALS	18			1.00	0.42
117 VOCABULARY	19				1.00

N = 63 FOR CELL A1

(CONTINUED)

TABLE A2.7
(SECOND PAGE)

X-POPULATION

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.36	0.10	0.23	0.30	0.01	0.36	0.43	0.13	0.24	0.36	0.08	0.02	0.22	0.23
004 COUNT BUTTONS	2		1.00	0.35	0.50	0.66	0.04	0.38	0.69	0.31	0.34	0.48	0.45	0.21	0.47	0.46
005 WRITE NUMERALS	3			1.00	0.11	0.37	0.04	0.04	0.04	0.23	0.34	0.23	0.22	0.16	0.07	0.13
006 COUNT MEMS:PC	4				1.00	0.56	0.08	0.19	0.54	0.05	0.20	0.23	0.25	0.19	0.33	0.35
007 IDFY NUMERALS	5					1.00	0.04	0.44	0.48	0.38	0.23	0.40	0.44	0.18	0.33	0.28
008 VIS MEMRY:OBJS	6						1.00	-0.03	0.14	0.22	0.11	0.26	0.18	0.49	0.06	-0.07
010 VOCABULARY	7							1.00	0.34	0.34	0.20	0.22	0.24	-0.06	0.37	0.35
012 EQIV SETS:DOTS	8								1.00	0.31	0.23	0.56	0.25	0.17	0.39	0.26
013 ORDINAL NUMBER	9									1.00	0.20	0.45	0.45	0.06	0.37	0.30
014 ORDRG:GEO SHAP	10										1.00	0.19	0.06	0.28	0.07	0.00
015 CLASSIFYING	11											1.00	0.24	0.15	0.49	0.46
016 ROTE COUNTING	12												1.00	0.20	0.29	0.23
017 VIS MEMRY:PICT	13													1.00	-0.07	-0.24
020 COLOR:NAMING	14														1.00	0.73
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.57	0.22	0.22	0.31
004 COUNT BUTTONS	2	0.50	0.32	0.45	0.44
005 WRITE NUMERALS	3	0.28	0.28	0.18	0.05
006 COUNT MEMS:PC	4	0.27	0.18	0.16	0.23
007 IDFY NUMERALS	5	0.33	0.38	0.40	0.31
008 VIS MEMRY:OBJS	6	0.06	0.01	0.13	0.27
010 VOCABULARY	7	0.34	0.06	0.21	0.32
012 EQIV SETS:DOTS	8	0.47	0.08	0.33	0.48
013 ORDINAL NUMBER	9	0.22	0.04	0.34	0.27
014 ORDRG:GEO SHAP	10	0.28	0.19	0.06	0.07
015 CLASSIFYING	11	0.43	0.17	0.32	0.27
016 ROTE COUNTING	12	0.17	0.35	0.30	0.29
017 VIS MEMRY:PICT	13	0.06	0.23	0.10	0.08
020 COLOR:NAMING	14	0.37	0.32	0.51	0.25
021 COLOR:IDFYING	15	0.40	0.34	0.46	0.11
106 COUNT BUTTNS	16	1.00	0.33	0.48	0.26
108 WRITE NUMERALS	17		1.00	0.50	0.12
113 IDFY NUMERALS	18			1.00	0.25
117 VOCABULARY	19				1.00

N = 46 FOR CELL B1

(CONTINUED)

TABLE A2.7
(THIRD PAGE)

X-POPULATION

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.33	0.20	0.41	0.43	0.17	0.44	0.19	0.21	0.05	0.51	0.41	0.18	0.29	0.26
004 COUNT BUTTONS	2		1.00	0.41	0.65	0.64	-0.06	0.44	0.45	0.39	0.04	0.52	0.33	0.16	0.30	0.37
005 WRITE NUMERALS	3			1.00	0.28	0.62	0.15	0.31	0.29	0.34	0.18	0.32	0.37	0.05	0.29	0.32
006 COUNT MEMS:PC	4				1.00	0.53	0.09	0.30	0.59	0.34	0.15	0.61	0.29	0.31	0.29	0.36
007 IDFY NUMERALS	5					1.00	0.04	0.43	0.43	0.40	0.15	0.60	0.48	0.10	0.46	0.49
008 VIS MEMRY:OBJS	6						1.00	0.01	0.05	0.06	0.17	0.13	0.17	0.11	-0.08	-0.09
010 VOCABULARY	7							1.00	0.21	0.50	0.15	0.49	0.25	0.05	0.26	0.35
012 EQIV SETS:DOTS	8								1.00	0.45	0.07	0.53	0.20	0.19	0.04	0.10
013 ORDINAL NUMBER	9									1.00	0.47	0.45	0.32	0.14	0.11	0.14
014 ORDRG:GEO SHAP	10										1.00	0.25	0.08	0.01	-0.01	0.07
015 CLASSIFYING	11											1.00	0.39	0.23	0.25	0.30
016 ROTE COUNTING	12												1.00	0.10	0.32	0.31
017 VIS MEMRY:PICT	13													1.00	-0.02	-0.07
020 COLOR:NAMING	14														1.00	0.84
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.41	0.39	0.48	0.46
004 COUNT BUTTONS	2	0.56	0.15	0.34	0.42
005 WRITE NUMERALS	3	0.20	0.38	0.33	0.31
006 COUNT MEMS:PC	4	0.56	0.21	0.39	0.41
007 IDFY NUMERALS	5	0.38	0.30	0.57	0.47
008 VIS MEMRY:OBJS	6	0.26	0.14	0.13	0.15
010 VOCABULARY	7	0.34	0.08	0.31	0.60
012 EQIV SETS:DOTS	8	0.40	0.14	0.32	0.34
013 ORDINAL NUMBER	9	0.32	0.09	0.23	0.43
014 ORDRG:GEO SHAP	10	0.12	0.01	-0.00	0.18
015 CLASSIFYING	11	0.46	0.14	0.42	0.51
016 ROTE COUNTING	12	0.38	0.32	0.33	0.23
017 VIS MEMRY:PICT	13	0.23	0.07	0.10	0.18
C20 COLOR:NAMING	14	0.14	0.21	0.36	0.19
021 COLOR:IDFYING	15	0.17	0.20	0.34	0.23
106 COUNT BUTTNS	16	1.00	0.44	0.54	0.47
109 WRITE NUMERALS	17		1.00	0.59	0.23
113 IDFY NUMERALS	18			1.00	0.47
117 VOCABULARY	19				1.00

N = 69 FOR CELL C1

(CONTINUED)

TABLE A2.7
(FOURTH PAGE)

X-POPULATION

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C03 GEO SHAP:IDFY	1	1.00	0.30	0.26	0.23	0.14	0.31	0.42	0.35	0.55	0.40	0.46	0.37	0.19	0.37	0.29
C04 COUNT BUTTONS	2		1.00	0.31	0.46	0.61	0.29	0.49	0.40	0.62	0.33	0.28	0.37	-0.07	0.58	0.50
C05 WRITE NUMERALS	3			1.00	0.00	0.41	-0.02	0.07	0.07	0.33	0.23	0.14	0.16	0.0	0.19	0.17
C06 COUNT MEMS:PC	4				1.00	0.39	0.20	0.57	0.26	0.14	0.19	0.30	0.22	-0.16	0.46	0.43
C07 IDFY NUMERALS	5					1.00	0.05	0.44	0.18	0.42	0.22	0.09	0.41	-0.09	0.48	0.40
C08 VIS MEMRY:OBJS	6						1.00	0.35	0.30	0.13	0.00	0.13	-0.17	0.28	0.21	0.16
C10 VOCABULARY	7							1.00	0.13	0.39	0.34	0.32	0.29	0.16	0.68	0.72
C12 EQIV SETS:DOTS	8								1.00	0.46	0.45	0.34	0.06	-0.02	0.34	0.20
C13 ORDINAL NUMBER	9									1.00	0.32	0.32	0.55	0.07	0.45	0.31
C14 ORDRG:GEO SHAP	10										1.00	0.36	0.24	-0.10	0.31	0.17
C15 CLASSIFYING	11											1.00	0.10	0.27	0.50	0.33
C16 ROTE COUNTING	12												1.00	-0.08	0.14	0.17
C17 VIS MEMRY:PICT	13													1.00	-0.11	-0.02
C20 COLOR:NAMING	14														1.00	0.82
C21 COLOR:IDFYING	15															1.00

		16	17	18	19
C03 GEO SHAP:IDFY	1	0.21	0.10	0.16	0.22
C04 COUNT BUTTONS	2	0.46	0.28	0.53	0.20
C05 WRITE NUMERALS	3	0.29	0.34	0.26	-0.02
C06 COUNT MEMS:PC	4	0.42	0.12	0.23	0.23
C07 IDFY NUMERALS	5	0.45	0.32	0.51	0.32
C08 VIS MEMRY:OBJS	6	0.35	-0.06	0.16	-0.01
C10 VOCABULARY	7	0.54	0.09	0.48	0.59
C12 EQIV SETS:DOTS	8	0.11	0.22	0.13	0.18
C13 ORDINAL NUMBER	9	0.36	0.13	0.36	0.30
C14 ORDRG:GEO SHAP	10	0.13	0.31	0.19	0.09
C15 CLASSIFYING	11	0.30	-0.04	-0.05	0.39
C16 ROTE COUNTING	12	0.10	0.25	0.23	0.29
C17 VIS MEMRY:PICT	13	0.18	-0.30	-0.23	0.24
C20 COLOR:NAMING	14	0.27	0.14	0.51	0.49
C21 COLOR:IDFYING	15	0.40	0.09	0.54	0.51
106 COUNT BUTTNS	16	1.00	-0.00	0.18	0.34
108 WRITE NUMERALS	17		1.00	0.35	0.07
113 IDFY NUMERALS	18			1.00	0.20
117 VOCABULARY	19				1.00

N = 35 FOR CELL D1

(CONTINUED)

TABLE A2.7
(FIFTH PAGE)

Y-POPULATION

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.38	0.13	0.09	0.42	0.03	0.37	0.34	0.13	0.17	0.59	0.36	0.18	0.48	0.52
004 COUNT BUTTONS	2		1.00	0.58	0.68	0.75	-0.07	0.42	0.46	0.58	0.27	0.51	0.51	0.19	0.64	0.58
005 WRITE NUMERALS	3			1.00	0.42	0.60	0.12	0.13	0.17	0.55	0.18	0.28	0.45	0.28	0.29	0.31
006 COUNT MEMS:PC	4				1.00	0.66	-0.11	0.29	0.45	0.43	0.42	0.45	0.36	0.24	0.46	0.44
007 IDFY NUMERALS	5					1.00	-0.06	0.37	0.42	0.36	0.27	0.52	0.47	0.28	0.56	0.52
008 VIS MEMRY:CBJS	6						1.00	-0.05	0.06	0.22	0.18	0.01	-0.23	0.17	-0.06	-0.08
010 VOCABULARY	7							1.00	0.25	0.47	0.20	0.42	0.10	0.24	0.50	0.45
012 EQIV SETS:DOTS	8								1.00	0.33	0.31	0.42	0.37	0.15	0.41	0.41
013 ORDINAL NUMBER	9									1.00	0.33	0.33	0.22	0.19	0.39	0.33
014 ORDRG:GEO SHAP	10										1.00	0.29	0.06	-0.10	0.30	0.28
015 CLASSIFYING	11											1.00	0.34	0.31	0.61	0.59
016 ROTE COUNTING	12												1.00	0.17	0.36	0.32
017 VIS MEMRY:PICT	13													1.00	0.27	0.24
020 COLOR:NAMING	14														1.00	0.90
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.35	0.21	0.55	0.47
004 COUNT BUTTONS	2	0.34	0.59	0.57	0.57
005 WRITE NUMERALS	3	0.16	0.35	0.32	0.35
006 COUNT MEMS:PC	4	0.43	0.61	0.47	0.50
007 IDFY NUMERALS	5	0.38	0.52	0.56	0.52
008 VIS MEMRY:CBJS	6	-0.06	-0.21	0.07	0.05
010 VOCABULARY	7	0.31	0.32	0.47	0.41
012 EQIV SETS:DOTS	8	0.18	0.39	0.45	0.38
013 ORDINAL NUMBER	9	0.32	0.51	0.36	0.39
014 ORDRG:GEO SHAP	10	0.17	0.39	0.37	0.42
015 CLASSIFYING	11	0.42	0.48	0.59	0.56
016 ROTE COUNTING	12	0.15	0.48	0.37	0.37
017 VIS MEMRY:PICT	13	0.06	0.14	0.33	0.26
020 COLOR:NAMING	14	0.38	0.54	0.64	0.63
021 COLOR:IDFYING	15	0.41	0.55	0.68	0.69
102 GEO SHAP:NAME	16	1.00	0.27	0.43	0.51
120 ORDNAL NUMBERS	17		1.00	0.54	0.58
128 CLASSIFYING-S1	18			1.00	0.91
129 CLASSIFYING	19				1.00

N = 56 FOR CELL A1

(CONTINUED)

TABLE A2.7
(SIXTH PAGE)

Y-POPULATION

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.32	0.14	0.22	0.31	0.25	0.49	0.31	0.29	0.20	0.28	0.00	0.24	0.47	0.27
004 COUNT BUTTONS	2		1.00	0.33	0.61	0.60	-0.12	0.52	0.36	0.34	0.42	0.31	0.43	0.05	0.65	0.47
005 WRITE NUMERALS	3			1.00	0.45	0.49	0.07	0.38	0.10	0.39	0.38	0.25	0.39	-0.02	0.26	0.23
006 COUNT MEMS:PC	4				1.00	0.45	-0.17	0.54	0.20	0.11	0.42	0.14	0.27	-0.01	0.40	0.37
007 IDFY NUMERALS	5					1.00	-0.12	0.56	0.35	0.43	0.46	0.36	0.42	0.12	0.52	0.40
008 VIS MEMRY:OBJS	6						1.00	0.09	0.07	0.18	0.12	0.12	-0.09	0.29	0.07	0.17
010 VOCABULARY	7							1.00	0.51	0.38	0.55	0.37	0.08	0.11	0.61	0.50
012 EQIV SETS:DOTS	8								1.00	0.41	0.49	0.32	0.13	0.17	0.43	0.27
013 ORDINAL NUMBER	9									1.00	0.36	0.37	0.39	0.03	0.30	0.14
014 ORDRG:GEO SHAP	10										1.00	0.42	0.20	0.10	0.40	0.35
015 CLASSIFYING	11											1.00	0.20	0.45	0.48	0.35
016 ROTE COUNTING	12												1.00	0.04	0.31	0.31
017 VIS MEMRY:PICT	13													1.00	0.17	0.08
020 COLOR:NAMING	14														1.00	0.76
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.09	0.16	0.40	0.46
004 COUNT BUTTONS	2	0.44	0.44	0.44	0.49
005 WRITE NUMERALS	3	0.16	0.32	0.33	0.28
006 COUNT MEMS:PC	4	0.26	0.33	0.34	0.35
007 IDFY NUMERALS	5	0.38	0.34	0.37	0.38
008 VIS MEMRY:OBJS	6	-0.04	0.07	0.11	0.06
010 VOCABULARY	7	0.21	0.30	0.31	0.37
012 EQIV SETS:DOTS	8	0.35	0.31	0.23	0.31
013 ORDINAL NUMBER	9	0.25	0.33	0.18	0.25
014 ORDRG:GEO SHAP	10	0.38	0.51	0.42	0.43
015 CLASSIFYING	11	0.36	0.45	0.51	0.31
016 ROTE COUNTING	12	0.18	0.39	0.31	0.30
017 VIS MEMRY:PICT	13	0.05	0.15	0.47	0.28
020 COLOR:NAMING	14	0.37	0.46	0.40	0.47
021 COLOR:IDFYING	15	0.35	0.45	0.33	0.33
102 GEO SHAP:NAME	16	1.00	0.34	0.30	0.34
120 ORDNAL NUMBERS	17		1.00	0.54	0.49
128 CLASSIFYING-S1	18			1.00	0.83
129 CLASSIFYING	19				1.00

N = 48 FOR CELL B1

(CONTINUED)

TABLE A2.7
(SEVENTH PAGE)

Y-POPULATION

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.23	0.14	0.34	0.29	0.02	0.43	0.14	0.12	0.25	0.36	0.21	0.10	0.35	0.36
004 COUNT BUTTONS	2		1.00	0.45	0.41	0.63	-0.06	0.36	0.35	0.57	0.28	0.35	0.52	0.04	0.38	0.52
005 WRITE NUMERALS	3			1.00	0.49	0.49	0.07	0.32	0.28	0.37	0.21	0.49	0.45	0.12	0.29	0.26
006 COUNT MEMS:PC	4				1.00	0.43	-0.07	0.27	0.41	0.34	0.12	0.45	0.32	0.13	0.36	0.38
007 IDFY NUMERALS	5					1.00	-0.10	0.37	0.22	0.49	0.30	0.47	0.53	-0.00	0.52	0.52
008 VIS MEMRY:OBJS	6						1.00	0.16	-0.15	-0.04	0.02	-0.02	0.05	0.15	-0.13	-0.07
010 VOCABULARY	7							1.00	0.18	0.49	0.17	0.47	0.39	0.17	0.21	0.40
012 EQIV SETS:DOTS	8								1.00	0.18	0.40	0.22	0.32	0.15	0.16	0.17
013 ORDINAL NUMBER	9									1.00	0.28	0.40	0.34	0.16	0.12	0.24
014 ORDRG:GEO SHAP	10										1.00	0.43	0.11	0.10	0.31	0.32
015 CLASSIFYING	11											1.00	0.27	0.06	0.41	0.41
016 ROTE COUNTING	12												1.00	-0.02	0.43	0.45
017 VIS MEMRY:PICT	13													1.00	-0.08	0.04
020 COLOR:NAMING	14														1.00	0.83
021 COLOR:IDFYING	15															1.00

		16	17	18	19
C03 GEO SHAP:IDFY	1	0.28	0.16	0.13	0.25
004 COUNT BUTTONS	2	0.25	0.47	0.41	0.45
005 WRITE NUMERALS	3	0.18	0.41	0.20	0.22
006 COUNT MEMS:PC	4	0.19	0.13	0.31	0.33
007 IDFY NUMERALS	5	0.31	0.38	0.31	0.33
008 VIS MEMRY:OBJS	6	-0.13	0.11	0.08	-0.06
C10 VOCABULARY	7	0.33	0.23	0.22	0.30
012 EQIV SETS:DOTS	8	0.20	0.24	0.34	0.39
013 ORDINAL NUMBER	9	0.05	0.17	0.09	0.21
014 ORDRG:GEO SHAP	10	0.07	0.12	0.13	0.22
015 CLASSIFYING	11	0.12	0.13	0.36	0.36
C16 ROTE COUNTING	12	0.31	0.49	0.42	0.41
017 VIS MEMRY:PICT	13	-0.00	0.08	0.10	0.08
020 COLOR:NAMING	14	0.31	0.37	0.38	0.49
021 COLOR:IDFYING	15	0.39	0.34	0.41	0.50
102 GEO SHAP:NAME	16	1.00	0.15	0.29	0.40
120 ORDNAL NUMBERS	17		1.00	0.21	0.26
128 CLASSIFYING-S1	18			1.00	0.86
129 CLASSIFYING	19				1.00

N = 62 FOR CELL C1

(CONTINUED)

TABLE A2.7
(EIGHTH PAGE)

Y-POPULATION

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.05	0.09	-0.11	-0.08	0.13	-0.04	-0.10	0.06	0.11	0.07	0.28	0.00	0.20	0.20
004 COUNT BUTTONS	2		1.00	0.15	0.31	0.58	-0.47	0.26	0.52	0.35	0.26	0.14	0.13	0.01	0.30	0.25
005 WRITE NUMERALS	3			1.00	0.13	0.23	0.14	0.09	0.25	0.34	0.41	0.35	0.57	0.16	0.13	0.07
006 COUNT MEMS:PC	4				1.00	0.21	-0.06	0.08	0.40	-0.19	0.06	0.27	0.14	0.24	0.08	0.05
007 IDFY NUMERALS	5					1.00	-0.36	0.41	0.36	0.34	0.51	0.20	0.25	0.07	0.31	0.17
008 VIS MEMRY:OBJS	6						1.00	-0.17	-0.10	-0.01	0.14	0.10	0.18	0.34	-0.06	-0.15
010 VOCABULARY	7							1.00	0.38	0.40	0.19	0.26	0.01	-0.09	0.09	-0.05
012 EQIV SETS:DOTS	8								1.00	0.40	0.34	0.31	0.19	0.33	0.43	0.38
013 ORDINAL NUMBER	9									1.00	0.23	0.40	0.49	0.02	0.16	0.14
014 ORORG:GEO SHAP	10										1.00	0.21	0.32	-0.06	0.29	0.28
015 CLASSIFYING	11											1.00	0.49	-0.10	0.32	0.18
016 ROTE COUNTING	12												1.00	0.08	-0.02	-0.03
017 VIS MEMRY:PICT	13													1.00	0.04	0.04
020 COLOR:NAMING	14														1.00	0.91
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.18	-0.11	0.22	0.16
004 COUNT BUTTONS	2	0.04	0.60	0.22	0.10
005 WRITE NUMERALS	3	0.17	0.28	0.16	0.19
006 COUNT MEMS:PC	4	-0.17	0.24	-0.05	-0.13
007 IDFY NUMERALS	5	0.12	0.65	-0.00	0.03
008 VIS MEMRY:OBJS	6	-0.09	-0.44	-0.00	0.09
010 VOCABULARY	7	-0.05	0.29	0.17	0.06
012 EQIV SETS:DOTS	8	0.02	0.41	0.16	0.07
013 ORDINAL NUMBER	9	0.03	0.32	0.03	-0.03
014 ORORG:GEO SHAP	10	-0.04	0.49	-0.20	-0.00
015 CLASSIFYING	11	-0.15	0.12	-0.07	-0.05
016 ROTE COUNTING	12	0.01	0.35	0.09	0.16
017 VIS MEMRY:PICT	13	-0.28	0.02	0.01	-0.06
020 COLOR:NAMING	14	0.26	0.17	-0.09	-0.11
021 COLOR:IDFYING	15	0.26	0.18	-0.22	-0.24
102 GEO SHAP:NAME	16	1.00	0.04	0.34	0.36
120 ORDNAL NUMBERS	17		1.00	0.07	0.15
128 CLASSIFYING-S1	18			1.00	0.86
129 CLASSIFYING	19				1.00

N = 24 FOR CELL D1

(CONTINUED)

TABLE A2.7
(NINTH PAGE)

Z-POPULATION

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.39	0.27	0.25	0.23	0.10	0.22	0.43	0.18	0.13	0.48	0.09	0.24	0.28	0.18
004 COUNT BUTTONS	2		1.00	0.51	0.50	0.65	0.04	0.40	0.70	0.43	0.46	0.47	0.62	0.02	0.57	0.43
005 WRITE NUMERALS	3			1.00	0.32	0.54	0.13	0.31	0.46	0.44	0.36	0.32	0.60	0.10	0.24	0.09
006 COUNT MEMS:PC	4				1.00	0.38	0.08	0.29	0.56	0.22	0.21	0.23	0.30	-0.01	0.42	0.37
007 IDFY NUMERALS	5					1.00	0.06	0.38	0.57	0.47	0.38	0.25	0.57	0.01	0.54	0.41
008 VIS MEMRY:OBJS	6						1.00	0.18	0.12	0.07	-0.12	0.10	0.09	0.04	0.19	0.16
010 VOCABULARY	7							1.00	0.34	0.17	0.07	0.45	0.40	0.20	0.36	0.18
012 EQIV SETS:DOTS	8								1.00	0.41	0.41	0.50	0.43	0.05	0.55	0.31
013 ORDINAL NUMBER	9									1.00	0.30	0.44	0.63	0.20	0.35	0.31
014 ORDRG:GEO SHAP	10										1.00	0.12	0.29	-0.02	0.23	0.14
015 CLASSIFYING	11											1.00	0.35	0.28	0.45	0.32
016 ROTE COUNTING	12												1.00	0.04	0.40	0.30
017 VIS MEMRY:PICT	13													1.00	0.18	-0.01
020 COLOR:NAMING	14														1.00	0.81
021 COLOR:IDFYING	15															1.00

		16	17	18
003 GEO SHAP:IDFY	1	0.20	0.16	0.43
004 COUNT BUTTONS	2	0.51	0.64	0.52
005 WRITE NUMERALS	3	0.29	0.38	0.36
006 COUNT MEMS:PC	4	0.37	0.44	0.28
007 IDFY NUMERALS	5	0.21	0.35	0.29
008 VIS MEMRY:OBJS	6	-0.08	0.09	-0.07
010 VOCABULARY	7	0.16	0.24	0.15
012 EQIV SETS:DOTS	8	0.41	0.51	0.45
013 ORDINAL NUMBER	9	0.42	0.44	0.32
014 ORDRG:GEO SHAP	10	0.35	0.36	0.31
015 CLASSIFYING	11	0.35	0.43	0.25
016 ROTE COUNTING	12	0.42	0.44	0.36
017 VIS MEMRY:PICT	13	-0.11	0.02	-0.03
020 COLOR:NAMING	14	0.31	0.44	0.18
021 COLOR:IDFYING	15	0.24	0.38	0.14
137 ORDRG:SET OBJS	16	1.00	0.76	0.51
139 ORDR:PICT SETS	17		1.00	0.50
146 CNSRVATN CMPOS	18			1.00

N = 55 FOR CELL A1

(CONTINUED)

TABLE A2.7
(TENTH PAGE)

Z-POPULATION

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
C03 GEO SHAP:IDFY	1	1.00	0.11	0.16	0.14	0.08	0.11	-0.03	0.20	-0.01	0.00	0.31	-0.02	0.19	0.10	0.18
004 COUNT BUTTONS	2		1.00	0.41	0.72	0.53	0.06	0.49	0.46	0.43	0.55	0.44	0.44	0.20	0.35	0.48
005 WRITE NUMERALS	3			1.00	0.42	0.56	0.24	0.19	0.43	0.02	0.21	0.30	0.23	0.16	0.16	0.19
006 COUNT MEMS:PC	4				1.00	0.48	0.14	0.35	0.42	0.44	0.40	0.45	0.39	0.19	0.30	0.38
007 IDFY NUMERALS	5					1.00	0.22	0.41	0.67	0.42	0.49	0.46	0.45	-0.04	0.37	0.44
008 VIS MEMRY:OBJS	6						1.00	0.11	0.27	0.13	-0.15	0.36	-0.03	0.23	0.26	0.22
010 VOCABULARY	7							1.00	0.39	0.28	0.21	0.42	0.35	0.07	0.22	0.39
012 EQIV SETS:DOTS	8								1.00	0.38	0.30	0.51	0.30	-0.05	0.06	0.16
013 ORDINAL NUMBER	9									1.00	0.44	0.52	0.44	0.05	0.28	0.30
014 ORDRG:GEO SHAP	10										1.00	0.31	0.34	0.19	0.39	0.36
015 CLASSIFYING	11											1.00	0.24	0.14	0.42	0.41
016 ROTE COUNTING	12												1.00	0.14	0.13	0.15
017 VIS MEMRY:PICT	13													1.00	0.31	0.27
020 COLOR:NAMING	14														1.00	0.83
021 COLOR:IDFYING	15															1.00

		16	17	18
C03 GEO SHAP:IDFY	1	0.27	0.20	0.10
004 COUNT BUTTONS	2	0.67	0.51	0.59
005 WRITE NUMERALS	3	0.37	0.26	0.41
006 COUNT MEMS:PC	4	0.62	0.44	0.41
007 IDFY NUMERALS	5	0.55	0.42	0.40
008 VIS MEMRY:OBJS	6	0.16	0.11	0.22
C10 VOCABULARY	7	0.38	0.28	0.35
012 EQIV SETS:DOTS	8	0.53	0.39	0.53
013 ORDINAL NUMBER	9	0.47	0.37	0.32
014 ORDRG:GEO SHAP	10	0.47	0.39	0.42
015 CLASSIFYING	11	0.53	0.37	0.37
C16 ROTE COUNTING	12	0.19	0.24	0.30
017 VIS MEMRY:PICT	13	0.31	0.21	0.25
020 COLOR:NAMING	14	0.36	0.15	0.24
021 COLOR:IDFYING	15	0.45	0.21	0.30
137 ORDRG:SET OBJS	16	1.00	0.81	0.45
139 ORDR:PICT SETS	17		1.00	0.18
146 CNSRVATN CMPOS	18			1.00

N = 51 FOR CELL B1

(CONTINUED)

TABLE A2.7
(ELEVENTH PAGE)

Z-POPULATION

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.08	-0.04	0.09	0.13	0.06	0.28	0.26	0.16	0.15	0.37	0.11	0.15	0.09	0.05
004 COUNT BUTTONS	2		1.00	0.47	0.55	0.55	0.07	0.24	0.36	0.38	0.12	0.35	0.61	0.20	0.39	0.33
005 WRITE NUMERALS	3			1.00	0.43	0.51	0.19	0.12	0.16	0.37	0.02	0.16	0.46	0.29	0.27	0.22
006 COUNT MEMS:PC	4				1.00	0.34	-0.01	0.43	0.38	0.33	0.00	0.29	0.44	0.26	0.48	0.37
007 IDFY NUMERALS	5					1.00	0.01	0.25	0.13	0.37	0.10	0.37	0.49	0.28	0.25	0.29
008 VIS MEMRY:OBJS	6						1.00	0.07	0.15	0.09	0.29	0.20	-0.04	0.02	0.17	0.09
010 VOCABULARY	7							1.00	0.21	0.48	0.09	0.47	0.35	0.18	0.23	0.29
012 EQIV SETS:DOTS	8								1.00	0.16	0.10	0.27	0.18	0.19	0.26	0.17
013 ORDINAL NUMBER	9									1.00	0.18	0.40	0.38	-0.02	0.25	0.19
C14 ORDRG:GEO SHAP	10										1.00	0.34	0.12	-0.24	-0.00	0.00
015 CLASSIFYING	11											1.00	0.22	0.15	0.25	0.25
016 ROTE COUNTING	12												1.00	0.30	0.25	0.25
017 VIS MEMRY:PICT	13													1.00	0.39	0.10
020 COLOR:NAMING	14														1.00	0.80
021 COLOR:IDFYING	15															1.00

		16	17	18
003 GEO SHAP:IDFY	1	0.01	-0.22	-0.06
004 COUNT BUTTONS	2	0.34	0.36	0.37
C05 WRITE NUMERALS	3	0.26	0.27	0.18
006 COUNT MEMS:PC	4	0.18	0.35	0.24
007 IDFY NUMERALS	5	0.25	0.13	0.25
008 VIS MEMRY:OBJS	6	0.17	0.18	0.11
010 VOCABULARY	7	0.33	0.28	0.36
012 EQIV SETS:DOTS	8	0.23	0.28	0.38
013 ORDINAL NUMBER	9	0.44	0.33	0.26
C14 ORDRG:GEO SHAP	10	0.30	0.15	-0.01
015 CLASSIFYING	11	0.43	0.29	0.35
016 ROTE COUNTING	12	0.37	0.34	0.32
017 VIS MEMRY:PICT	13	0.19	0.20	0.32
020 COLOR:NAMING	14	0.13	0.20	0.15
C21 COLOR:IDFYING	15	0.28	0.22	0.15
137 ORDRG:SET OBJS	16	1.00	0.74	0.38
139 ORDR:PICT SETS	17		1.00	0.43
146 CNSRVATN CMPOS	18			1.00

N = 72 FOR CELL C1

(CONTINUED)

TABLE A2.7
(TWELFTH PAGE)

Z-POPULATION

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.02	0.24	0.38	-0.23	-0.04	0.11	0.19	0.14	-0.03	0.35	0.07	0.19	0.36	0.21
004 COUNT BUTTONS	2		1.00	0.27	0.40	0.47	0.28	0.36	0.65	0.48	0.41	0.43	0.47	0.23	0.20	0.22
005 WRITE NUMERALS	3			1.00	0.46	0.33	0.12	0.30	0.33	0.20	-0.07	0.52	0.62	0.24	0.10	0.04
006 COUNT MEMS:PC	4				1.00	0.29	0.31	0.20	0.42	0.23	0.06	0.69	0.32	0.33	0.36	0.31
007 IDFY NUMERALS	5					1.00	0.23	0.47	0.45	0.35	0.24	0.42	0.46	0.15	0.21	0.32
008 VIS MEMRY:OBJS	6						1.00	0.20	0.35	0.01	0.22	0.37	0.10	0.41	0.25	0.26
010 VOCABULARY	7							1.00	0.45	0.38	0.07	0.18	0.34	0.24	0.39	0.34
012 EQIV SETS:DOTS	8								1.00	0.45	0.31	0.58	0.48	0.13	0.43	0.49
013 ORDINAL NUMBER	9									1.00	0.19	0.37	0.51	-0.06	0.14	0.03
014 ORDRG:GEO SHAP	10										1.00	0.18	0.02	-0.02	0.05	0.07
015 CLASSIFYING	11											1.00	0.47	0.23	0.25	0.31
016 ROTE COUNTING	12												1.00	0.28	-0.08	-0.04
017 VIS MEMRY:PICT	13													1.00	0.21	0.12
020 COLOR:NAMING	14														1.00	0.87
021 COLOR:IDFYING	15															1.00

		16	17	18
003 GEO SHAP:IDFY	1	0.09	0.10	0.24
004 COUNT BUTTONS	2	0.45	0.51	0.35
005 WRITE NUMERALS	3	0.28	0.37	0.18
006 COUNT MEMS:PC	4	-0.03	0.08	0.51
007 IDFY NUMERALS	5	0.17	0.22	0.31
008 VIS MEMRY:OBJS	6	-0.03	-0.02	0.28
010 VOCABULARY	7	0.43	0.49	0.51
012 EQIV SETS:DOTS	8	0.35	0.42	0.19
013 ORDINAL NUMBER	9	0.25	0.38	0.25
014 ORDRG:GEO SHAP	10	0.24	0.28	-0.01
015 CLASSIFYING	11	0.17	0.23	0.37
016 ROTE COUNTING	12	0.18	0.35	0.25
017 VIS MEMRY:PICT	13	-0.09	-0.12	0.33
020 COLOR:NAMING	14	0.32	0.26	0.32
021 COLOR:IDFYING	15	0.18	0.15	0.21
137 ORDRG:SET OBJS	16	1.00	0.83	0.33
139 ORDR:PICT SETS	17		1.00	0.22
146 CNSRVATN CMPOS	18			1.00

N = 33 FOR CELL D1

Table A2.8
Regression Weights by Cell
for End-of-Kindergarten Subpopulation Scales
Using Beginning-of-Kindergarten Scales as Covariates
Selected Sample

A. X-Population Scales

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DEPENDENT VARIABLE -- 106X COUNTING BUTTONS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.539	0.340	0.466	0.136	0.434	0.444
010 VOCABULARY	0.239	0.128	0.210	0.168	0.204	0.193
017 VIS MEMRY:PICT	0.377	-0.014	0.203	0.048	0.182	0.171

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.456	0.288	0.395	0.115	0.368	0.376
010 VOCABULARY	0.165	0.088	0.145	0.116	0.141	0.133
017 VIS MEMRY:PICT	0.800	-0.029	0.431	0.102	0.385	0.362
RSQ	0.471	0.279	0.361	0.363	0.357	0.393
R	0.686	0.528	0.601	0.602	0.597	0.627
F	17.479	5.406	12.994	5.882	39.385	45.924
P	0.000	0.003	0.000	0.003	0.000	0.000

****

DEPENDENT VARIABLE -- 109X WRITING NUMERALS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.104	0.151	0.457	0.021	0.201	0.186
005 WRITE NUMERALS	-0.136	0.124	0.362	0.203	0.161	0.152
007 IDFY NUMERALS	0.452	0.250	-0.061	0.254	0.224	0.258
010 VOCABULARY	-0.089	-0.201	-0.150	-0.043	-0.104	-0.093
020 COLOR:NAMING	0.272	0.323	0.064	0.016	0.166	0.174

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.240	0.349	1.059	0.048	0.465	0.432
005 WRITE NUMERALS	-0.226	0.207	0.604	0.338	0.268	0.253
007 IDFY NUMERALS	0.435	0.240	-0.059	0.244	0.215	0.248
010 VOCABULARY	-0.083	-0.188	-0.140	-0.040	-0.098	-0.087
020 COLOR:NAMING	0.418	0.496	0.098	0.025	0.254	0.268
RSQ	0.380	0.238	0.290	0.157	0.233	0.260
R	0.616	0.488	0.539	0.396	0.482	0.509
F	6.983	2.628	5.650	1.079	13.039	15.071
P	0.000	0.037	0.000	0.393	0.000	0.000

(continued)

Table A2.8
(second page)

A. X-Population Scales (continued)

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DEPENDENT VARIABLE -- 112X IDENTIFICATION OF NUMERALS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.065	0.052	0.323	-0.007	0.145	0.134
007 IDFY NUMERALS	0.331	0.259	0.403	0.168	0.337	0.360
020 COLOR:NAMING	0.421	0.571	0.202	0.187	0.334	0.342

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.135	0.109	0.670	-0.015	0.300	0.278
007 IDFY NUMERALS	0.285	0.223	0.347	0.145	0.290	0.310
020 COLOR:NAMING	0.577	0.782	0.277	0.256	0.458	0.469
RSQ	0.536	0.323	0.434	0.358	0.404	0.443
R	0.732	0.569	0.659	0.598	0.635	0.665
F	22.730	7.008	17.877	5.758	48.723	57.193
P	0.000	0.001	0.000	0.003	0.000	0.000

****

DEPENDENT VARIABLE -- 117X VOCABULARY (INDIVIDUAL)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
007 IDFY NUMERALS	0.111	0.025	0.192	0.100	0.125	0.141
010 VOCABULARY	0.559	0.128	0.492	0.480	0.472	0.485
012 EQIV SETS:DOTS	0.141	0.320	0.100	0.095	0.138	0.162
017 VIS MEMRY:PICT	0.250	0.009	0.185	0.124	0.162	0.175

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
007 IDFY NUMERALS	0.117	0.027	0.201	0.105	0.132	0.148
010 VOCABULARY	0.567	0.129	0.499	0.487	0.478	0.492
012 EQIV SETS:DOTS	0.210	0.476	0.149	0.141	0.205	0.241
017 VIS MEMRY:PICT	0.778	0.029	0.577	0.385	0.504	0.545
RSQ	0.565	0.258	0.446	0.385	0.431	0.503
R	0.751	0.508	0.667	0.621	0.656	0.709
F	18.805	3.570	13.659	4.703	40.065	53.534
P	0.000	0.014	0.000	0.005	0.000	0.000

(continued)

Table A2.8
(third page)

B. Y-Population Scales

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DEPENDENT VARIABLE -- 102Y GEOMETRIC SHAPES: NAMING

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.221	0.434	0.171	-0.027	0.185	0.236
020 COLOR:NAMING	0.234	0.108	0.255	0.278	0.247	0.255

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.085	0.167	0.066	-0.011	0.071	0.091
020 COLOR:NAMING	0.121	0.056	0.131	0.143	0.127	0.131
RSQ	0.139	0.263	0.139	0.072	0.141	0.188
R	0.373	0.513	0.372	0.269	0.375	0.434
F	4.618	8.211	4.991	1.246	16.906	23.843
P	0.014	0.001	0.010	0.301	0.000	0.000

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DEPENDENT VARIABLE -- 120Y ORDINAL NUMBER

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.395	0.393	0.248	0.588	0.388	0.418
014 ORDRG:GEO SHAP	0.337	0.284	0.003	0.282	0.198	0.209
016 ROTE COUNTING	0.289	0.147	0.468	0.195	0.235	0.220

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.298	0.296	0.187	0.444	0.293	0.316
014 ORDRG:GEO SHAP	0.764	0.645	0.008	0.640	0.450	0.475
016 ROTE COUNTING	0.426	0.217	0.691	0.287	0.347	0.325
RSQ	0.462	0.393	0.308	0.513	0.374	0.417
R	0.680	0.627	0.555	0.716	0.611	0.645
F	15.769	9.720	8.917	10.547	40.212	48.082
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A2.8
(fourth page)

B. Y-Population Scales (continued)

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DEPENDENT VARIABLE -- 128Y CLASSIFYING S-1

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.302	0.367	0.254	0.293	0.307	0.292
015 CLASSIFYING	0.261	0.340	0.180	-0.145	0.181	0.204
020 COLOR:NAMING	0.274	0.001	0.194	-0.134	0.180	0.176

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.201	0.244	0.169	0.195	0.204	0.194
015 CLASSIFYING	0.238	0.310	0.164	-0.132	0.165	0.186
020 COLOR:NAMING	0.243	0.001	0.172	-0.119	0.160	0.156
RSQ	0.414	0.389	0.292	0.111	0.293	0.308
R	0.644	0.624	0.540	0.334	0.541	0.555
F	13.200	9.544	8.369	1.295	28.309	30.377
P	0.000	0.000	0.000	0.294	0.000	0.000

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DEPENDENT VARIABLE -- 129Y CLASSIFYING

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.322	0.222	0.259	0.150	0.278	0.304
015 CLASSIFYING	0.252	0.062	0.099	-0.109	0.107	0.147
020 COLOR:NAMING	0.341	0.125	0.294	-0.096	0.265	0.256

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.369	0.254	0.297	0.172	0.319	0.349
015 CLASSIFYING	0.396	0.098	0.155	-0.170	0.168	0.231
020 COLOR:NAMING	0.521	0.192	0.449	-0.147	0.405	0.391
RSQ	0.432	0.301	0.350	0.057	0.308	0.348
R	0.657	0.549	0.591	0.238	0.555	0.590
F	14.206	6.460	10.927	0.623	30.359	36.452
P	0.000	0.001	0.000	0.605	0.000	0.000

(continued)

Table A2.8
(fifth page)

C. Z-Population Scales

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DEPENDENT VARIABLE -- 1377 ORDERING SETS OF OBJECTS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.359	0.442	0.148	0.515	0.299	0.289
013 ORDINAL NUMBER	0.190	0.091	0.276	0.048	0.162	0.170
014 ORDRG:GEO SHAP	0.154	0.077	0.177	0.069	0.153	0.186
015 CLASSIFYING	0.124	0.217	0.201	-0.018	0.168	0.183

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.169	0.208	0.070	0.243	0.141	0.136
013 ORDINAL NUMBER	0.130	0.062	0.190	0.033	0.111	0.117
014 ORDRG:GEO SHAP	0.228	0.113	0.261	0.103	0.227	0.275
015 CLASSIFYING	0.078	0.137	0.127	-0.011	0.106	0.116
RSQ	0.344	0.532	0.332	0.254	0.343	0.396
R	0.587	0.729	0.576	0.503	0.585	0.629
F	6.821	13.048	8.834	2.462	27.757	34.858
P	0.000	0.000	0.000	0.067	0.000	0.000

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DEPENDENT VARIABLE -- 1382 ORDERING PICTURED SETS (INDIVIDUAL)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.636	0.378	0.302	0.428	0.424	0.440
013 ORDINAL NUMBER	0.204	0.162	0.269	0.125	0.193	0.220

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.308	0.183	0.146	0.207	0.205	0.213
013 ORDINAL NUMBER	0.143	0.114	0.189	0.088	0.136	0.155
RSQ	0.457	0.307	0.196	0.307	0.290	0.333
R	0.676	0.554	0.443	0.554	0.538	0.577
F	22.688	10.844	8.899	6.869	44.030	54.009
P	0.000	0.000	0.000	0.003	0.000	0.000

(continued)

Table A2.8
(sixth page)

C. Z-Population Scales (continued)

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DEPENDENT VARIABLE -- 146Z CONSERVATION COMPOSITE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.495	0.383	0.148	0.355	0.289	0.298
010 VOCABULARY	-0.008	0.011	0.183	0.584	0.145	0.152
012 EQIV SETS:DOTS	0.158	0.393	0.210	-0.300	0.221	0.227
017 VIS MEMRY:PICT	-0.002	0.181	0.261	0.166	0.132	0.130

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.560	0.433	0.167	0.402	0.328	0.338
010 VOCABULARY	-0.008	0.012	0.184	0.588	0.146	0.153
012 EQIV SETS:DOTS	0.223	0.555	0.296	-0.423	0.312	0.320
017 VIS MEMRY:PICT	-0.006	0.496	0.718	0.456	0.363	0.357
RSQ	0.332	0.503	0.300	0.388	0.313	0.361
R	0.576	0.709	0.548	0.623	0.559	0.601
F	6.462	11.870	7.510	4.602	24.220	30.143
P	0.000	0.000	0.000	0.005	0.000	0.000

Table A3.1
Correlations of End-of-First-Grade Scales and End-of-Kindergarten Scales
Total Sample

A. Mathematics Scales

	1	2	3	4	5	6	7	8	9	10
1 104 GEO SHAP:IDFY	1.00	0.14	0.11	0.14	0.09	0.11	0.14	0.13	0.19	0.12
2 110 COUNT MEMS:PC		1.00	0.62	0.43	0.45	0.30	0.35	0.21	0.20	0.18
3 111 CNT MEMS:OBJS			1.00	0.47	0.46	0.21	0.30	0.18	0.14	0.15
4 118 EQIV SETS:OBJS				1.00	0.64	0.25	0.33	0.19	0.14	0.23
5 119 EQIV SETS:DOTS					1.00	0.27	0.35	0.16	0.12	0.26
6 130 CLASFY(OVRLAP)						1.00	0.42	0.35	0.23	0.29
7 147 ORDRG:COMPOS							1.00	0.35	0.25	0.35
8 M112 VOCB:WPSI SCA								1.00	0.44	0.35
9 M114 SIML:WPSI SCA									1.00	0.22
10 M117 P.CM:WPSI SCA										1.00

	11	12	13	14	15	16	17	18	19	20
1 104 GEO SHAP:IDFY	0.17	0.20	0.19	0.10	0.25	0.15	0.08	0.15	0.18	0.15
2 110 COUNT MEMS:PC	0.32	0.31	0.30	0.34	0.33	0.46	0.35	0.32	0.32	0.29
3 111 CNT MEMS:OBJS	0.30	0.22	0.27	0.34	0.30	0.41	0.32	0.33	0.23	0.30
4 118 EQIV SETS:OBJS	0.32	0.26	0.30	0.42	0.34	0.43	0.35	0.33	0.29	0.33
5 119 EQIV SETS:DOTS	0.35	0.29	0.26	0.41	0.35	0.41	0.35	0.33	0.32	0.31
6 130 CLASFY(OVRLAP)	0.30	0.39	0.32	0.33	0.35	0.39	0.32	0.30	0.45	0.30
7 147 ORDRG:COMPOS	0.44	0.43	0.40	0.43	0.33	0.53	0.45	0.42	0.46	0.39
8 M112 VOCB:WPSI SCA	0.34	0.50	0.45	0.30	0.29	0.39	0.23	0.33	0.32	0.29
9 M114 SIML:WPSI SCA	0.24	0.30	0.36	0.22	0.25	0.34	0.17	0.35	0.25	0.26
10 M117 P.CM:WPSI SCA	0.47	0.36	0.35	0.36	0.32	0.37	0.36	0.27	0.29	0.33
11 M120 BLKD:WPSI SCA	1.00	0.36	0.35	0.40	0.32	0.48	0.47	0.43	0.39	0.38
12 R201 WORD MEAN:MRT		1.00	0.59	0.41	0.40	0.54	0.37	0.35	0.39	0.35
13 R202 LISTENING:MRT			1.00	0.47	0.42	0.54	0.37	0.39	0.40	0.39
14 R203 MATCHING:MRT				1.00	0.43	0.58	0.47	0.41	0.47	0.46
15 R204 ALPHABET:MRT					1.00	0.56	0.39	0.38	0.38	0.35
16 R205 NUMBERS:MRT						1.00	0.50	0.57	0.51	0.46
17 R206 COPYING:MRT							1.00	0.38	0.41	0.35
18 306 PLACE VALUE								1.00	0.47	0.42
19 307 NUMBER CMPARSN									1.00	0.39
20 308 NUMBER LINE										1.00

(continued)

Table A3.1 (second page) -- A. Mathematics Scales (continued)

		21	22	23	24	25	26	27	28	29	30
1	104 GEO SHAP:IDFY	0.17	0.01	0.12	0.13	0.08	0.13	0.21	-0.14	0.10	0.12
2	110 COUNT MEMS:PC	0.27	0.05	0.43	0.34	0.24	0.05	0.15	-0.04	0.30	0.36
3	111 CNT MEMS:OBJS	0.26	0.04	0.39	0.34	0.18	0.09	0.19	-0.05	0.25	0.31
4	118 EQIV SETS:OBJS	0.26	0.08	0.40	0.32	0.18	0.08	0.18	-0.01	0.22	0.32
5	119 EQIV SETS:DOTS	0.28	0.11	0.43	0.34	0.21	0.09	0.19	-0.07	0.20	0.31
6	130 CLASFY(OVRLAP)	0.30	0.09	0.29	0.36	0.19	0.07	0.12	-0.03	0.27	0.28
7	147 ORDRG:COMPOS	0.42	0.12	0.43	0.41	0.30	0.05	0.22	-0.03	0.33	0.35
8	M112 VOCB:WPSI SCA	0.34	0.11	0.26	0.27	0.20	0.08	0.15	0.04	0.25	0.27
9	M114 SIML:WPSI SCA	0.35	0.11	0.30	0.31	0.19	0.08	0.09	0.04	0.22	0.25
10	M117 P.CM:WPSI SCA	0.35	0.11	0.33	0.31	0.23	0.05	0.14	-0.01	0.22	0.24
11	M120 BLKD:WPSI SCA	0.39	0.14	0.44	0.39	0.29	0.06	0.23	-0.04	0.29	0.37
12	R201 WORD MEAN:MRT	0.38	0.15	0.36	0.38	0.30	-0.04	0.15	0.00	0.25	0.34
13	R202 LISTENING:MRT	0.40	0.09	0.40	0.39	0.22	0.06	0.24	-0.05	0.28	0.29
14	R203 MATCHING:MRT	0.40	0.14	0.44	0.45	0.27	0.11	0.23	-0.07	0.34	0.32
15	R204 ALPHABET:MRT	0.32	0.08	0.42	0.44	0.23	0.01	0.14	0.02	0.24	0.35
16	R205 NUMBERS:MRT	0.53	0.15	0.58	0.57	0.40	0.13	0.27	-0.05	0.46	0.40
17	R206 COPYING:MRT	0.35	0.11	0.43	0.42	0.26	0.01	0.22	0.01	0.28	0.33
18	306 PLACE VALUE	0.55	0.16	0.52	0.52	0.37	0.09	0.27	-0.04	0.41	0.42
19	307 NUMBER CMPARSN	0.46	0.12	0.43	0.44	0.29	0.14	0.29	-0.11	0.33	0.36
20	308 NUMBER LINE	0.38	0.16	0.42	0.43	0.25	0.07	0.24	0.01	0.30	0.36
21	309 APPLICATION	1.00	0.14	0.49	0.51	0.36	0.10	0.21	-0.01	0.46	0.36
22	310 RATIONALS		1.00	0.10	0.16	0.11	0.06	0.13	-0.00	0.14	0.14
23	311 COMPUTE:ADD			1.00	0.65	0.37	0.05	0.21	-0.02	0.33	0.46
24	312 COMPUTE:SUBT				1.00	0.39	-0.00	0.23	-0.01	0.37	0.51
25	313 COMPUTE:MULT					1.00	0.04	0.14	0.07	0.39	0.33
26	321 IDFY TRIANGS						1.00	0.43	-0.40	0.18	0.02
27	322 IDFY RECTS							1.00	-0.37	0.24	0.21
28	323 CURVD FIGS								1.00	-0.04	-0.01
29	328 CMPREHEN:GROUP									1.00	0.31
30	329 CMPREHEN:INDIV										1.00

(continued)

Table A3.1 (third page) -- B. Raven Scales

		1	2	3	4	5	6	7	8	9	10	11
1	104 GEO SHAP:IDFY	1.00	0.16	0.13	0.15	0.13	0.14	0.15	0.12	0.18	0.13	0.18
2	110 COUNT MEMS:PC		1.00	0.63	0.44	0.44	0.33	0.34	0.23	0.21	0.19	0.32
3	111 CNT MEMS:OBJS			1.00	0.49	0.49	0.25	0.30	0.18	0.14	0.16	0.30
4	118 EQIV SETS:OBJS				1.00	0.65	0.28	0.34	0.20	0.15	0.24	0.33
5	119 EQIV SETS:DOTS					1.00	0.31	0.36	0.18	0.14	0.25	0.34
6	130 CLASFY(OVRLAP)						1.00	0.43	0.37	0.22	0.29	0.32
7	147 ORDRG:COMPOS							1.00	0.40	0.21	0.36	0.45
8	M112 VOCB:WPSI SCA								1.00	0.43	0.37	0.34
9	M114 SIML:WPSI SCA									1.00	0.22	0.23
10	M117 P.CM:WPSI SCA										1.00	0.45
11	M120 BLKD:WPSI SCA											1.00

		12	13	14	15	16	17	18	19	20	21
1	104 GEO SHAP:IDFY	0.21	0.20	0.12	0.24	0.18	0.10	0.12	0.10	0.12	0.14
2	110 COUNT MEMS:PC	0.32	0.33	0.35	0.35	0.48	0.38	0.25	0.29	0.24	0.32
3	111 CNT MEMS:OBJS	0.25	0.31	0.35	0.34	0.44	0.35	0.24	0.26	0.24	0.31
4	118 EQIV SETS:OBJS	0.28	0.32	0.42	0.37	0.45	0.37	0.21	0.25	0.21	0.27
5	119 EQIV SETS:DOTS	0.31	0.30	0.40	0.38	0.44	0.35	0.23	0.28	0.21	0.30
6	130 CLASFY(OVRLAP)	0.41	0.34	0.35	0.38	0.42	0.35	0.24	0.33	0.27	0.35
7	147 ORDRG:COMPOS	0.44	0.41	0.43	0.34	0.54	0.46	0.37	0.42	0.37	0.48
8	M112 VOCB:WPSI SCA	0.53	0.47	0.31	0.30	0.42	0.26	0.27	0.36	0.39	0.42
9	M114 SIML:WPSI SCA	0.29	0.35	0.21	0.24	0.33	0.16	0.08	0.20	0.20	0.20
10	M117 P.CM:WPSI SCA	0.37	0.36	0.37	0.33	0.36	0.36	0.29	0.37	0.33	0.41
11	M120 BLKD:WPSI SCA	0.37	0.37	0.40	0.33	0.48	0.48	0.39	0.45	0.41	0.52
12	R201 WORD MEAN:MRT	1.00	0.60	0.42	0.42	0.55	0.40	0.31	0.43	0.40	0.48
13	R202 LISTENING:MRT		1.00	0.48	0.44	0.56	0.37	0.32	0.38	0.35	0.44
14	R203 MATCHING:MRT			1.00	0.45	0.59	0.48	0.34	0.40	0.33	0.44
15	R204 ALPHABET:MRT				1.00	0.59	0.41	0.23	0.31	0.29	0.35
16	R205 NUMBERS:MRT					1.00	0.52	0.32	0.44	0.40	0.48
17	R206 COPYING:MRT						1.00	0.36	0.41	0.39	0.48
18	M201 SET A:RAVEN							1.00	0.46	0.39	0.72
19	M202 SET AB:RAVEN								1.00	0.56	0.87
20	M203 SET B:RAVEN									1.00	0.81
21	M204 TOTAL:RAVEN										1.00

(continued)

Table A3.1 (fourth page) -- C. SAT Scales

	1	2	3	4	5	6	7	8	9	10	11
1 104 GEO SHAP:IDFY	1.00	0.15	0.12	0.15	0.12	0.14	0.14	0.13	0.19	0.11	0.17
2 110 COUNT MEMS:PC		1.00	0.63	0.44	0.45	0.32	0.34	0.22	0.19	0.19	0.33
3 111 CNT MEMS:OBJS			1.00	0.48	0.49	0.24	0.30	0.17	0.12	0.16	0.30
4 118 EQIV SETS:OBJS				1.00	0.64	0.27	0.33	0.19	0.13	0.24	0.32
5 119 EQIV SETS:DOTS					1.00	0.30	0.35	0.17	0.12	0.25	0.34
6 130 CLASFY(OVRLAP)						1.00	0.43	0.38	0.22	0.30	0.32
7 147 ORDRG:COMPOS							1.00	0.36	0.22	0.36	0.44
8 M112 VOCB:WPSI SCA								1.00	0.43	0.36	0.34
9 M114 SIML:WPSI SCA									1.00	0.22	0.27
10 M117 P.CM:WPSI SCA										1.00	0.45
11 M120 BLKD:WPSI SCA											1.00

	12	13	14	15	16	17	18	19	20
1 104 GEO SHAP:IDFY	0.22	0.20	0.12	0.26	0.18	0.09	0.23	0.20	0.22
2 110 COUNT MEMS:PC	0.32	0.31	0.35	0.34	0.47	0.37	0.35	0.33	0.35
3 111 CNT MEMS:OBJS	0.23	0.29	0.34	0.32	0.43	0.34	0.28	0.26	0.27
4 118 EQIV SETS:OBJS	0.28	0.31	0.41	0.36	0.44	0.37	0.33	0.33	0.34
5 119 EQIV SETS:DOTS	0.30	0.29	0.40	0.37	0.43	0.35	0.30	0.30	0.31
6 130 CLASFY(OVRLAP)	0.42	0.34	0.35	0.37	0.42	0.35	0.30	0.26	0.29
7 147 ORDRG:COMPOS	0.43	0.41	0.43	0.33	0.54	0.46	0.43	0.41	0.44
8 M112 VOCB:WPSI SCA	0.51	0.46	0.30	0.29	0.40	0.25	0.28	0.27	0.28
9 M114 SIML:WPSI SCA	0.29	0.35	0.21	0.25	0.33	0.16	0.26	0.25	0.26
10 M117 P.CM:WPSI SCA	0.37	0.35	0.37	0.32	0.37	0.36	0.30	0.26	0.29
11 M120 BLKD:WPSI SCA	0.35	0.36	0.40	0.32	0.48	0.47	0.42	0.40	0.42
12 R201 WORD MEAN:MRT	1.00	0.60	0.42	0.41	0.55	0.39	0.37	0.35	0.37
13 R202 LISTENING:MRT		1.00	0.47	0.43	0.55	0.38	0.38	0.33	0.37
14 R203 MATCHING:MRT			1.00	0.45	0.59	0.48	0.41	0.41	0.42
15 R204 ALPHABET:MRT				1.00	0.58	0.41	0.55	0.52	0.55
16 R205 NUMBERS:MRT					1.00	0.52	0.58	0.56	0.59
17 R206 COPYING:MRT						1.00	0.40	0.39	0.41
18 A201 #RT:SAT WORD							1.00	0.86	0.96
19 A205 #RT:SAT PGPH								1.00	0.97
20 A209 #RT:SAT TOTAL									1.00

(continued)

Table A3.1 (fifth page) -- D. Kuhlmann-Anderson Scale

		1	2	3	4	5	6	7	8	9
1	104 GEO SHAP:IDFY	1.00	0.15	0.11	0.14	0.07	0.10	0.15	0.14	0.17
2	110 COUNT MEMS:PC		1.00	0.62	0.42	0.42	0.25	0.31	0.21	0.19
3	111 CNT MEMS:OBJS			1.00	0.47	0.48	0.18	0.29	0.17	0.13
4	118 EQIV SETS:OBJS				1.00	0.64	0.23	0.31	0.20	0.12
5	119 EQIV SETS:DOTS					1.00	0.25	0.32	0.18	0.11
6	130 CLASFY(OVRLAP)						1.00	0.39	0.35	0.19
7	147 ORDRG:COMPOS							1.00	0.35	0.21
8	M112 VOCB:WPSI SCA								1.00	0.43
9	M114 SIML:WPSI SCA									1.00

		10	11	12	13	14	15	16	17	18
1	104 GEO SHAP:IDFY	0.13	0.18	0.20	0.19	0.08	0.25	0.16	0.10	0.22
2	110 COUNT MEMS:PC	0.18	0.30	0.28	0.28	0.30	0.30	0.43	0.33	0.35
3	111 CNT MEMS:OBJS	0.15	0.29	0.20	0.26	0.32	0.30	0.39	0.31	0.32
4	118 EQIV SETS:OBJS	0.26	0.30	0.24	0.29	0.39	0.31	0.42	0.34	0.38
5	119 EQIV SETS:DOTS	0.25	0.31	0.24	0.22	0.36	0.32	0.38	0.30	0.31
6	130 CLASFY(OVRLAP)	0.29	0.28	0.36	0.29	0.29	0.31	0.35	0.30	0.32
7	147 ORDRG:COMPOS	0.36	0.39	0.39	0.38	0.41	0.30	0.49	0.42	0.46
8	M112 VOCB:WPSI SCA	0.39	0.34	0.51	0.46	0.32	0.29	0.38	0.23	0.39
9	M114 SIML:WPSI SCA	0.23	0.21	0.29	0.36	0.20	0.25	0.32	0.16	0.28
10	M117 P.CM:WPSI SCA	1.00	0.45	0.37	0.35	0.35	0.30	0.35	0.36	0.43
11	M120 BLKD:WPSI SCA		1.00	0.33	0.34	0.35	0.28	0.43	0.44	0.53
12	R201 WORD MEAN:MRT			1.00	0.59	0.39	0.38	0.51	0.36	0.41
13	R202 LISTENING:MRT				1.00	0.47	0.41	0.52	0.36	0.42
14	R203 MATCHING:MRT					1.00	0.42	0.57	0.42	0.46
15	R204 ALPHABET:MRT						1.00	0.58	0.36	0.43
16	R205 NUMBERS:MRT							1.00	0.46	0.56
17	R206 COPYING:MRT								1.00	0.52
18	M324 IQ:KUHL-ANDER									1.00

Table A3.2

Order of Entry and Multiple Correlations
between End-of-First-Grade Scales and End-of-Kindergarten
Common Scales Omitting Scale R205
Total Sample

Covariate Scales	Dependent Variable Scales								
	306	307	308	309	311	312	313	322	328
K-02 Scales									
104								2;.29	
110					2;.53				3;.42
111	5;.59								
118									
119									
130		2;.56							
147	4;.57	3;.59	4;.55	1;.42	5;.61	3;.56	3;.38		2;.39
WPPSI Scales									
M112									
M114	3;.55			2;.49		4;.58			4;.44
M117									
M120*	1;.43	4;.60	2;.51	4;.55	3;.58		2;.36	3;.32	
MRT Scales									
R201					1;.44		1;.30		
R202			3;.54					1;.24	
R203		1;.47	1;.46	3;.53		1;.45		4;.34	1;.34
R204	2;.50				4;.60	2;.53			
R206						5;.59			
Maximum Multiple R	.60	.62	.57	.57	.64	.61	.40	.35	.45

N = 611

Note: The numeral before the semicolon is the step number at which the variable entered the equation.

The decimal after the semicolon is the multiple R reached at that step; the multiple R for the first variable entered is underlined.

Entries in the table appear for all variables that increase the multiple R by .01 or more.

The last line of the table gives the value attained by the multiple R when the F-value to enter is less than 2.0.

Table A3.3

Covariates and Their Standardized Regression Coefficients Used for Prediction of End-of-First-Grade Scales from End-of-Kindergarten Common Scales Omitting Scale R205 Total Sample

Dependent Variable Scales	Covariate Scales	
	Scale No.	STDZ
306	111	.13
	147	.18
	M114	.19
	M120	.22
	R204	.17
307	130	.25
	147	.18
	M120	.13
	R203	.25
308	147	.14
	M120	.16
	R202	.16
	R203	.27
309	147	.21
	M114	.21
	M120	.16
	R203	.19

Dependent Variable Scales	Covariate Scales	
	Scale No.	STDZ
311	110	.20
	147	.15
	M120	.19
	R203	.16
	R204	.17
312	147	.15
	M114	.15
	R203	.19
	R204	.22
	R206	.15
313	147	.15
	M120	.15
	R201	.18
322	104	.16
	M120	.12
	R202	.11
	R203	.12
328	110	.16
	147	.17
	M114	.11
	R203	.18

N = 611

Note: Results obtained from stepwise regressions using the same set of covariates as appear in Tables 3.1 and 3.2 except that Scale R205 (MRT Numbers Scale) was excluded from consideration as a covariate.

"Scale No." refers to the covariate scales that increase the multiple R by .01 or more for a given dependent variable.

"STDZ" is the standardized regression coefficient.

TABLE A3.4
CORRELATIONS WITHIN CELLS
OF END-OF-FIRST-GRADE SCALES AND END-OF-KINDERGARTEN SCALES
SELECTED SAMPLE

MATHEMATICS SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.11	0.09	0.14	0.19	0.09	0.14	0.25	0.10	0.16	0.29	0.18	0.11	0.18	0.16	0.21	0.25
110 COUNT MEMS:PC	2		1.00	0.54	0.49	0.50	0.31	0.39	0.27	0.37	0.34	0.35	0.39	0.33	0.12	0.23	0.08	0.33
111 CNT MEMS:OBJS	3			1.00	0.61	0.49	0.09	0.35	0.08	0.26	0.35	0.30	0.40	0.30	0.11	0.15	0.07	0.29
118 EQIV SETS:OBJS	4				1.00	0.74	0.17	0.36	0.24	0.41	0.42	0.38	0.43	0.43	0.20	0.14	0.17	0.24
119 EQIV SETS:DOTS	5					1.00	0.22	0.40	0.32	0.36	0.46	0.37	0.46	0.39	0.10	0.23	0.21	0.43
130 CLASFY(OVRLAP)	6						1.00	0.25	0.32	0.27	0.22	0.25	0.28	0.22	0.28	0.25	0.14	0.27
147 ORDRG:CCMPCS	7							1.00	0.19	0.20	0.32	0.25	0.40	0.44	0.11	0.25	0.24	0.41
R201 WORD MEAN:MRT	8								1.00	0.54	0.42	0.46	0.45	0.27	0.36	0.19	0.38	0.45
R202 LISTENING:MRT	9									1.00	0.47	0.49	0.53	0.29	0.38	0.39	0.35	0.40
R203 MATCHING:MRT	10										1.00	0.50	0.54	0.40	0.20	0.17	0.20	0.39
R204 ALPHABET:MRT	11											1.00	0.65	0.43	0.41	0.30	0.33	0.38
R205 NUMBERS:MRT	12												1.00	0.45	0.31	0.24	0.24	0.55
R206 COPYING:MRT	13													1.00	0.18	0.03	0.29	0.43
M112 VOCB:WPSI SCA	14														1.00	0.45	0.41	0.34
M114 SIML:WPSI SCA	15															1.00	0.32	0.22
M117 P.CM:WPSI SCA	16																1.00	0.42
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21	22	23	24	25	26	27	28	29
104 GEO SHAP:IDFY	1	0.15	0.16	0.21	0.10	0.08	0.21	0.02	0.09	0.33	-0.20	-0.07	0.01
110 COUNT MEMS:PC	2	0.27	0.22	0.22	0.26	0.38	0.34	0.14	0.03	0.08	-0.10	0.29	0.32
111 CNT MEMS:OBJS	3	0.32	0.02	0.35	0.24	0.35	0.33	0.19	0.05	0.18	-0.02	0.22	0.28
118 EQIV SETS:OBJS	4	0.40	0.23	0.37	0.25	0.40	0.32	0.19	-0.00	0.13	0.01	0.13	0.32
119 EQIV SETS:DOTS	5	0.37	0.29	0.38	0.33	0.38	0.35	0.25	0.04	0.19	-0.09	0.10	0.30
130 CLASFY(OVRLAP)	6	0.20	0.29	0.24	0.26	0.12	0.26	0.03	0.09	0.08	-0.07	0.25	0.09
147 ORDRG:CCMPCS	7	0.37	0.24	0.22	0.36	0.33	0.26	0.26	0.13	0.14	-0.11	0.27	0.21
R201 WORD MEAN:MRT	8	0.22	0.26	0.32	0.29	0.26	0.27	0.16	-0.14	0.09	-0.00	0.05	0.19
R202 LISTENING:MRT	9	0.35	0.30	0.49	0.29	0.40	0.32	0.10	-0.00	0.13	-0.01	0.19	0.29
R203 MATCHING:MRT	10	0.33	0.37	0.46	0.34	0.41	0.46	0.22	0.04	0.21	-0.01	0.24	0.27
R204 ALPHABET:MRT	11	0.47	0.37	0.46	0.44	0.41	0.47	0.19	-0.02	0.22	-0.01	0.17	0.40
R205 NUMBERS:MRT	12	0.51	0.41	0.51	0.55	0.58	0.49	0.37	0.12	0.32	-0.14	0.34	0.34
R206 COPYING:MRT	13	0.25	0.40	0.28	0.32	0.39	0.27	0.10	0.00	0.22	-0.08	0.13	0.16
M112 VOCB:WPSI SCA	14	0.22	0.21	0.21	0.25	0.26	0.30	0.10	0.01	0.19	0.00	-0.06	0.22
M114 SIML:WPSI SCA	15	0.42	0.24	0.28	0.31	0.38	0.40	0.15	0.09	0.22	-0.11	0.01	0.29
M117 P.CM:WPSI SCA	16	0.13	0.19	0.27	0.28	0.28	0.27	0.13	-0.03	-0.04	0.12	-0.10	0.08
M120 BLKD:WPSI SCA	17	0.38	0.38	0.41	0.36	0.47	0.34	0.25	-0.04	0.23	0.03	0.08	0.20
306 PLACE VALUE	18	1.00	0.51	0.43	0.53	0.52	0.54	0.42	0.16	0.37	-0.10	0.34	0.45
307 NUMBER CMPARSN	19		1.00	0.26	0.44	0.34	0.29	0.21	0.13	0.34	-0.09	0.12	0.16
308 NUMBER LINE	20			1.00	0.32	0.40	0.40	0.18	0.08	0.22	0.04	0.15	0.21
309 APPLICATION	21				1.00	0.42	0.49	0.31	0.14	0.26	-0.10	0.34	0.37
311 COMPUTE:ADD	22					1.00	0.61	0.30	0.16	0.23	-0.12	0.24	0.34
312 COMPUTE:SUBT	23						1.00	0.28	-0.02	0.25	-0.06	0.22	0.40
313 COMPUTE:MULT	24							1.00	0.01	0.08	0.08	0.30	0.28
321 IDFY TRIANGS	25								1.00	0.34	-0.31	0.14	-0.03
322 IDFY RECTS	26									1.00	-0.42	0.07	0.17
323 CURVD FIGS	27										1.00	0.02	-0.03
328 CMPREHEN:GROUP	28											1.00	0.25
329 CMPREHEN:INDIV	29												1.00

N = 134 FOR CELL A1

(CONTINUED)

TABLE A3.4
(SECOND PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.23	0.23	0.22	0.12	0.04	-0.03	0.29	0.28	0.16	0.17	0.25	0.01	0.19	0.17	0.09	0.16
110 COUNT MEMS:PC	2		1.00	0.69	0.35	0.47	0.25	0.31	0.20	0.12	0.28	0.08	0.38	0.25	0.11	0.09	0.13	0.30
111 CNT MEMS:OBJS	3			1.00	0.37	0.46	0.22	0.31	0.17	0.13	0.26	0.09	0.37	0.31	0.01	0.21	0.15	0.37
118 EQIV SETS:OBJS	4				1.00	0.49	0.20	0.20	0.20	0.17	0.32	0.23	0.38	0.35	0.21	0.22	0.22	0.33
119 EQIV SETS:DOTS	5					1.00	0.42	0.31	0.15	0.16	0.37	0.19	0.31	0.25	0.15	0.12	0.21	0.31
130 CLASFY(OVRLAP)	6						1.00	0.42	0.39	0.27	0.21	0.18	0.23	0.17	0.32	0.32	0.16	0.32
147 ORDRG:COMPCS	7							1.00	0.38	0.28	0.38	0.24	0.39	0.35	0.31	0.32	0.29	0.46
R201 WORD MEAN:MRT	8								1.00	0.59	0.31	0.33	0.42	0.26	0.43	0.29	0.18	0.29
R202 LISTENING:MRT	9									1.00	0.40	0.28	0.33	0.28	0.32	0.42	0.25	0.30
R203 MATCHING:MRT	10										1.00	0.35	0.46	0.35	0.29	0.18	0.31	0.34
R204 ALPHABET:MRT	11											1.00	0.45	0.24	0.14	0.20	0.27	0.23
R205 NUMBERS:MRT	12												1.00	0.28	0.29	0.32	0.27	0.46
R206 COPYING:MRT	13													1.00	0.11	0.21	0.18	0.47
M112 VOCB:WPSI SCA	14														1.00	0.36	0.19	0.31
M114 SIML:WPSI SCA	15															1.00	-0.03	0.21
M117 P.CM:WPSI SCA	16																1.00	0.38
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21	22	23	24	25	26	27	28	29
104 GEO SHAP:IDFY	1	0.25	0.16	0.08	0.29	0.15	0.10	0.06	0.24	0.18	-0.10	0.24	0.14
110 COUNT MEMS:PC	2	0.19	0.26	0.21	0.21	0.41	0.28	0.24	0.20	0.16	-0.05	0.22	0.29
111 CNT MEMS:OBJS	3	0.29	0.38	0.20	0.30	0.48	0.36	0.16	0.27	0.20	-0.07	0.16	0.26
118 EQIV SETS:OBJS	4	0.28	0.12	0.22	0.26	0.31	0.28	0.09	0.12	0.17	0.05	0.35	0.32
119 EQIV SETS:DOTS	5	0.19	0.22	0.14	0.21	0.32	0.33	0.04	0.20	0.20	-0.01	0.27	0.30
130 CLASFY(OVRLAP)	6	0.22	0.33	0.24	0.26	0.26	0.28	0.22	0.06	0.16	0.09	0.10	0.20
147 ORDRG:COMPCS	7	0.24	0.32	0.36	0.35	0.41	0.25	0.28	0.02	0.11	0.07	0.23	0.30
R201 WORD MEAN:MRT	8	0.27	0.17	0.19	0.35	0.29	0.27	0.30	0.11	0.14	0.12	0.04	0.29
R202 LISTENING:MRT	9	0.20	0.17	0.23	0.33	0.31	0.33	0.23	0.16	0.16	0.09	0.18	0.21
R203 MATCHING:MRT	10	0.28	0.29	0.30	0.34	0.29	0.27	0.25	0.17	0.11	0.04	0.36	0.24
R204 ALPHABET:MRT	11	0.34	0.19	0.29	0.38	0.24	0.44	0.21	0.07	-0.02	0.21	0.32	0.26
R205 NUMBERS:MRT	12	0.51	0.22	0.33	0.55	0.53	0.52	0.32	0.34	0.21	0.01	0.43	0.22
R206 COPYING:MRT	13	0.27	0.16	0.31	0.16	0.33	0.38	0.17	0.02	-0.00	0.18	0.20	0.25
M112 VOCB:WPSI SCA	14	0.25	0.21	0.24	0.18	0.05	0.09	0.22	0.28	0.30	-0.01	0.23	0.13
M114 SIML:WPSI SCA	15	0.34	0.20	0.24	0.29	0.20	0.34	0.22	0.16	0.16	0.05	0.29	0.21
M117 P.CM:WPSI SCA	16	0.13	0.16	0.14	0.23	0.14	0.18	0.07	0.03	-0.02	0.04	0.16	0.11
M120 BLKD:WPSI SCA	17	0.47	0.29	0.39	0.41	0.36	0.38	0.30	0.27	0.25	-0.13	0.29	0.31
306 PLACE VALUE	18	1.00	0.31	0.32	0.48	0.44	0.42	0.34	0.21	0.25	0.03	0.34	0.30
307 NUMBER CMPARSN	19		1.00	0.22	0.31	0.31	0.35	0.14	0.32	0.24	-0.19	0.26	0.22
308 NUMBER LINE	20			1.00	0.29	0.42	0.32	0.14	-0.01	-0.06	0.09	0.23	0.25
303 APPLICATION	21				1.00	0.56	0.51	0.39	0.23	0.17	-0.01	0.41	0.20
311 COMPUTE:ADD	22					1.00	0.64	0.37	0.11	0.10	0.13	0.30	0.41
312 COMPUTE:SUBT	23						1.00	0.43	0.11	0.11	0.17	0.45	0.42
313 COMPUTE:MULT	24							1.00	0.02	0.10	0.17	0.29	0.34
321 IDFY TRIANGS	25								1.00	0.51	-0.39	0.29	-0.04
322 IDFY RECTS	26									1.00	-0.21	0.21	0.13
323 CURVD FIGS	27										1.00	0.01	0.11
328 CMPREHEN:GROUP	28											1.00	0.30
329 CMPREHEN:INDIV	29												1.00

N = 113 FOR CELL B1

(CONTINUED)

TABLE A3.4
(THIRD PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.13	0.03	0.07	-0.04	-0.02	0.02	0.08	0.19	-0.06	0.29	0.07	-0.02	0.04	0.28	0.04	0.13
110 COUNT MEMS:PC	2		1.00	0.67	0.39	0.37	0.10	0.21	0.19	0.24	0.35	0.19	0.43	0.22	0.12	0.20	0.05	0.22
111 CNT MEMS:OBJS	3			1.00	0.40	0.45	0.17	0.20	0.16	0.24	0.31	0.21	0.40	0.25	0.10	0.08	0.06	0.19
118 EQIV SETS:OBJS	4				1.00	0.56	0.13	0.20	0.04	0.14	0.32	0.14	0.34	0.24	-0.04	-0.06	0.08	0.25
119 EQIV SETS:DOTS	5					1.00	0.16	0.23	0.13	0.11	0.31	0.24	0.35	0.34	0.02	-0.06	0.12	0.29
130 CLASFY(OVRLAP)	6						1.00	0.35	0.17	0.14	0.25	0.25	0.33	0.29	0.16	-0.03	0.28	0.07
147 ORDRG:COMPOS	7							1.00	0.34	0.30	0.35	0.09	0.51	0.41	0.18	0.01	0.27	0.34
R201 WORD MEAN:MRT	8								1.00	0.47	0.23	0.16	0.40	0.29	0.31	0.05	0.19	0.12
R202 LISTENING:MRT	9									1.00	0.34	0.30	0.52	0.35	0.31	0.16	0.21	0.21
R203 MATCHING:MRT	10										1.00	0.25	0.59	0.45	0.13	0.16	0.29	0.36
R204 ALPHABET:MRT	11											1.00	0.39	0.25	0.07	0.19	0.06	0.14
R205 NUMBERS:MRT	12												1.00	0.50	0.20	0.14	0.22	0.30
R206 COPYING:MRT	13													1.00	0.12	0.04	0.35	0.47
M112 VOCB:WPSI SCA	14														1.00	0.26	0.28	0.08
M114 SIML:WPSI SCA	15															1.00	-0.01	-0.00
M117 P.CM:WPSI SCA	16																1.00	0.30
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21	22	23	24	25	26	27	28	29
104 GEO SHAP:IDFY	1	0.06	0.14	0.10	0.13	0.09	0.05	0.12	0.10	0.15	-0.14	0.07	0.13
110 COUNT MEMS:PC	2	0.31	0.22	0.24	0.15	0.23	0.17	0.19	0.05	0.19	-0.05	0.28	0.31
111 CNT MEMS:OBJS	3	0.23	0.13	0.28	0.13	0.27	0.25	0.19	-0.00	0.11	-0.07	0.21	0.30
118 EQIV SETS:OBJS	4	0.30	0.22	0.26	0.18	0.27	0.26	0.20	0.07	0.13	-0.01	0.11	0.29
119 EQIV SETS:DOTS	5	0.31	0.21	0.34	0.19	0.40	0.30	0.22	0.01	0.14	-0.01	0.17	0.30
130 CLASFY(OVRLAP)	6	0.18	0.38	0.20	0.19	0.16	0.20	0.05	0.13	0.09	-0.07	0.15	0.17
147 ORDRG:COMPOS	7	0.35	0.42	0.31	0.26	0.28	0.32	0.21	-0.02	0.17	-0.11	0.21	0.33
R201 WORD MEAN:MRT	8	0.18	0.19	0.16	0.17	0.21	0.33	0.16	-0.09	0.19	-0.14	0.29	0.29
R202 LISTENING:MRT	9	0.32	0.28	0.22	0.34	0.22	0.26	0.16	-0.04	0.34	-0.14	0.29	0.28
R203 MATCHING:MRT	10	0.46	0.54	0.42	0.42	0.38	0.46	0.29	0.17	0.22	-0.30	0.34	0.34
R204 ALPHABET:MRT	11	0.26	0.22	0.27	0.12	0.17	0.23	0.01	0.02	0.14	-0.02	0.16	0.19
R205 NUMBERS:MRT	12	0.47	0.50	0.41	0.35	0.39	0.51	0.30	0.10	0.31	-0.17	0.41	0.36
R206 COPYING:MRT	13	0.40	0.37	0.26	0.32	0.35	0.42	0.24	-0.03	0.26	-0.12	0.24	0.35
M112 VOCB:WPSI SCA	14	0.20	0.09	0.13	0.23	0.08	0.11	0.09	0.01	0.02	-0.12	0.16	0.25
M114 SIML:WPSI SCA	15	0.14	0.05	0.05	0.20	0.08	0.06	0.09	0.01	-0.05	-0.02	-0.04	0.06
M117 P.CM:WPSI SCA	16	0.21	0.12	0.26	0.20	0.14	0.13	0.15	0.00	0.09	-0.10	0.15	0.18
M120 BLKD:WPSI SCA	17	0.42	0.22	0.24	0.25	0.39	0.30	0.23	-0.00	0.23	-0.17	0.21	0.36
306 PLACE VALUE	18	1.00	0.37	0.33	0.45	0.37	0.38	0.19	0.06	0.23	-0.11	0.31	0.35
307 NUMBER CMPARSN	19		1.00	0.41	0.38	0.27	0.38	0.16	0.20	0.31	-0.30	0.34	0.41
308 NUMBER LINE	20			1.00	0.32	0.34	0.40	0.15	0.06	0.18	-0.13	0.19	0.43
309 APPLICATION	21				1.00	0.37	0.40	0.30	0.14	0.16	-0.12	0.37	0.32
311 COMPUTE:ADD	22					1.00	0.54	0.23	0.01	0.17	-0.09	0.17	0.44
312 COMPUTE:SUBT	23						1.00	0.24	-0.01	0.26	-0.17	0.26	0.51
313 COMPUTE:MULT	24							1.00	0.15	0.10	-0.20	0.31	0.19
321 IDFY TRIANGS	25								1.00	0.35	-0.44	0.19	0.15
322 IDFY RECTS	26									1.00	-0.55	0.27	0.25
323 CURVD FIGS	27										1.00	-0.27	-0.20
328 CMPREHEN:GROUP	28											1.00	0.25
329 CMPREHEN:INDIV	29												1.00

N = 150 FOR CELL C1

TABLE A3.4
(FOURTH PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.10	0.01	0.06	-0.06	0.25	0.26	0.14	0.28	0.18	0.15	0.02	0.09	-0.04	0.18	-0.02	-0.04
110 COUNT MEMS:PC	2		1.00	0.66	0.32	0.42	0.40	0.36	0.19	0.26	0.24	0.33	0.47	0.44	0.13	0.08	0.24	0.28
111 CNT MEMS:OBJS	3			1.00	0.39	0.38	0.30	0.23	0.16	0.18	0.17	0.25	0.47	0.24	0.20	-0.00	0.12	0.26
118 EQIV SETS:OBJS	4				1.00	0.54	-0.07	0.40	0.15	0.27	0.32	0.35	0.49	0.19	0.20	0.14	0.11	0.23
119 EQIV SETS:DOTS	5					1.00	0.13	0.35	0.25	0.20	0.29	0.35	0.41	0.13	0.14	0.01	0.29	0.20
130 CLASFY(OVRLAP)	6						1.00	0.27	0.13	0.15	-0.00	0.15	0.24	0.16	0.21	0.23	0.19	0.31
147 ORDRG:COMPOS	7							1.00	0.35	0.43	0.44	0.51	0.55	0.29	0.34	0.24	0.24	0.28
R201 WORD MEAN:MRT	8								1.00	0.57	0.22	0.23	0.41	0.24	0.35	0.31	0.15	0.12
R202 LISTENING:MRT	9									1.00	0.23	0.37	0.43	0.26	0.44	0.38	0.25	0.17
R203 MATCHING:MRT	10										1.00	0.33	0.42	0.32	-0.02	0.16	0.26	0.16
R204 ALPHABET:MRT	11											1.00	0.61	0.23	0.30	0.23	0.23	0.18
R205 NUMBERS:MRT	12												1.00	0.39	0.24	0.21	0.34	0.42
R206 COPYING:MRT	13													1.00	0.04	0.14	0.01	0.23
M112 VOCB:WPSI SCA	14														1.00	0.39	0.18	0.32
M114 SIML:WPSI SCA	15															1.00	0.24	0.17
M117 P.CM:WPSI SCA	16																1.00	0.44
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21	22	23	24	25	26	27	28	29
104 GEO SHAP:IDFY	1	-0.00	0.22	0.28	0.20	0.12	0.05	0.00	0.13	0.17	-0.14	0.20	-0.01
110 COUNT MEMS:PC	2	0.27	0.51	0.36	0.31	0.55	0.40	0.29	0.14	0.15	-0.13	0.30	0.32
111 CNT MEMS:OBJS	3	0.45	0.42	0.23	0.30	0.47	0.42	0.19	0.18	0.12	-0.16	0.36	0.13
118 EQIV SETS:OBJS	4	0.23	0.26	0.28	0.37	0.46	0.35	0.15	-0.10	0.06	0.08	0.17	0.18
119 EQIV SETS:DOTS	5	0.21	0.26	0.00	0.29	0.35	0.17	0.18	0.14	0.13	-0.22	0.21	0.10
130 CLASFY(OVRLAP)	6	0.24	0.51	0.17	0.18	0.28	0.24	0.20	0.17	0.14	-0.20	0.25	0.24
147 ORDRG:COMPOS	7	0.42	0.57	0.39	0.43	0.52	0.37	0.23	0.10	0.22	-0.15	0.33	0.35
R201 WORD MEAN:MRT	8	0.35	0.24	0.25	0.24	0.19	0.23	0.11	0.06	-0.01	-0.25	0.29	0.17
R202 LISTENING:MRT	9	0.32	0.45	0.34	0.43	0.42	0.39	0.28	0.05	0.12	-0.11	0.38	0.19
R203 MATCHING:MRT	10	0.25	0.15	0.25	0.25	0.36	0.20	0.17	0.12	0.13	-0.03	0.27	0.19
R204 ALPHABET:MRT	11	0.40	0.48	0.21	0.39	0.52	0.35	0.33	0.06	0.01	-0.06	0.26	0.30
R205 NUMBERS:MRT	12	0.53	0.54	0.27	0.49	0.61	0.59	0.49	0.09	0.18	-0.06	0.48	0.47
R206 COPYING:MRT	13	0.22	0.27	0.25	0.15	0.42	0.39	0.31	0.01	0.22	0.06	0.15	0.28
M112 VOCB:WPSI SCA	14	0.29	0.35	0.16	0.24	0.21	0.12	0.15	0.20	0.01	-0.17	0.23	0.06
M114 SIML:WPSI SCA	15	0.27	0.29	0.36	0.38	0.34	0.36	0.23	0.17	-0.00	0.04	0.34	0.34
M117 P.CM:WPSI SCA	16	0.25	0.29	0.33	0.32	0.27	0.28	0.30	0.17	0.29	-0.16	0.29	0.18
M120 BLKD:WPSI SCA	17	0.50	0.35	0.26	0.21	0.32	0.29	0.25	0.13	0.28	-0.08	0.35	0.42
306 PLACE VALUE	18	1.00	0.50	0.41	0.55	0.47	0.51	0.27	-0.01	0.16	-0.14	0.48	0.29
307 NUMBER CMPARSN	19		1.00	0.40	0.54	0.59	0.50	0.22	0.15	0.27	-0.25	0.42	0.43
308 NUMBER LINE	20			1.00	0.48	0.36	0.34	0.16	0.02	0.27	-0.04	0.42	0.12
309 APPLICATION	21				1.00	0.45	0.50	0.22	0.10	0.14	-0.04	0.50	0.16
311 COMPUTE:ADD	22					1.00	0.72	0.40	-0.02	0.13	-0.05	0.31	0.44
312 COMPUTE:SUBT	23						1.00	0.35	0.11	0.23	-0.06	0.38	0.38
313 COMPUTE:MULT	24							1.00	-0.01	0.02	0.14	0.44	0.20
321 IDFY TRIANGS	25								1.00	0.49	-0.47	0.30	-0.08
322 IDFY RECTS	26									1.00	-0.42	0.29	-0.00
323 CURVD FIGS	27										1.00	-0.27	0.09
328 CMPREHEN:GROUP	28											1.00	0.11
329 CMPREHEN:INDIV	29												1.00

N = 76 FOR CELL D1

(CONTINUED)

TABLE A3.4
(FIFTH PAGE)

RAVEN SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.14	0.08	0.13	0.18	0.12	0.18	0.30	0.10	0.18	0.25	0.18	0.11	0.18	0.16	0.23	0.28
110 COUNT MEMS:PC	2		1.00	0.55	0.49	0.49	0.32	0.37	0.27	0.39	0.34	0.38	0.39	0.33	0.15	0.24	0.10	0.35
111 CNT MEMS:OBJS	3			1.00	0.61	0.49	0.10	0.36	0.12	0.30	0.34	0.30	0.40	0.31	0.09	0.17	0.08	0.31
118 EQIV SETS:OBJS	4				1.00	0.74	0.17	0.35	0.26	0.42	0.43	0.39	0.43	0.41	0.21	0.16	0.19	0.36
119 EQIV SETS:DOTS	5					1.00	0.23	0.40	0.33	0.36	0.43	0.41	0.46	0.39	0.11	0.23	0.21	0.41
130 CLASFY(OVRLAP)	6						1.00	0.27	0.31	0.28	0.23	0.27	0.29	0.22	0.28	0.25	0.13	0.27
147 ORDRG:COMPOS	7							1.00	0.19	0.21	0.32	0.26	0.40	0.45	0.16	0.25	0.26	0.43
R201 WORD MEAN:MRT	8								1.00	0.55	0.45	0.50	0.48	0.27	0.41	0.17	0.38	0.45
R202 LISTENING:MRT	9									1.00	0.49	0.49	0.54	0.26	0.43	0.38	0.38	0.43
R203 MATCHING:MRT	10										1.00	0.50	0.56	0.40	0.22	0.19	0.23	0.39
R204 ALPHABET:MRT	11											1.00	0.66	0.43	0.42	0.30	0.35	0.37
R205 NUMBERS:MRT	12												1.00	0.44	0.32	0.23	0.25	0.54
R206 COPYING:MRT	13													1.00	0.20	0.02	0.30	0.47
M112 VOCB:WPSI SCA	14														1.00	0.46	0.42	0.34
M114 SIML:WPSI SCA	15															1.00	0.34	0.20
M117 P.CM:WPSI SCA	16																1.00	0.43
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21
104 GEO SHAP:IDFY	1	0.11	0.18	0.21	0.22
110 COUNT MEMS:PC	2	0.27	0.28	0.05	0.28
111 CNT MEMS:OBJS	3	0.11	0.19	0.05	0.17
118 EQIV SETS:OBJS	4	0.20	0.28	0.17	0.30
119 EQIV SETS:DOTS	5	0.11	0.31	0.22	0.30
130 CLASFY(OVRLAP)	6	0.28	0.27	0.15	0.31
147 ORDRG:COMPOS	7	0.25	0.24	0.23	0.32
R201 WORD MEAN:MRT	8	0.25	0.30	0.33	0.40
R202 LISTENING:MRT	9	0.24	0.33	0.28	0.39
R203 MATCHING:MRT	10	0.35	0.30	0.20	0.38
R204 ALPHABET:MRT	11	0.22	0.29	0.33	0.38
R205 NUMBERS:MRT	12	0.37	0.36	0.33	0.47
R206 COPYING:MRT	13	0.45	0.38	0.36	0.53
M112 VOCB:WPSI SCA	14	0.13	0.10	0.27	0.22
M114 SIML:WPSI SCA	15	-0.06	-0.01	0.18	0.05
M117 P.CM:WPSI SCA	16	0.15	0.17	0.30	0.27
M120 BLKD:WPSI SCA	17	0.31	0.41	0.40	0.51
M201 SET A:RAVEN	18	1.00	0.41	0.17	0.68
M202 SET AB:RAVEN	19		1.00	0.36	0.85
M203 SET B:RAVEN	20			1.00	0.67
M204 TOTAL:RAVEN	21				1.00

N = 131 FOR CELL A1

(CONTINUED)

TABLE A3.4
(SIXTH PAGE)

RAVEN SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.20	0.21	0.19	0.09	0.04	-0.03	0.29	0.27	0.13	0.15	0.26	0.0	0.20	0.18	0.12	0.13
110 COUNT MEMS:PC	2		1.00	0.69	0.38	0.48	0.24	0.31	0.18	0.13	0.27	0.12	0.40	0.27	0.13	0.15	0.15	0.31
111 CNT MEMS:OBJS	3			1.00	0.41	0.46	0.23	0.32	0.17	0.12	0.26	0.12	0.39	0.34	0.02	0.24	0.16	0.38
118 EQIV SETS:OBJS	4				1.00	0.50	0.21	0.21	0.19	0.20	0.32	0.27	0.39	0.38	0.17	0.26	0.21	0.34
119 EQIV SETS:DOTS	5					1.00	0.44	0.33	0.14	0.17	0.35	0.23	0.34	0.29	0.11	0.18	0.21	0.31
130 CLASFY(OVRLAP)	6						1.00	0.42	0.40	0.27	0.20	0.17	0.23	0.17	0.33	0.30	0.17	0.33
147 ORDRG:COMPOS	7							1.00	0.39	0.29	0.37	0.22	0.39	0.35	0.34	0.18	0.31	0.46
R201 WORD MEAN:MRT	8								1.00	0.59	0.31	0.32	0.42	0.25	0.42	0.29	0.19	0.27
R202 LISTENING:MRT	9									1.00	0.40	0.28	0.34	0.28	0.35	0.42	0.29	0.31
R203 MATCHING:MRT	10										1.00	0.36	0.45	0.32	0.27	0.20	0.34	0.35
R204 ALPHABET:MRT	11											1.00	0.45	0.24	0.16	0.21	0.29	0.25
R205 NUMBERS:MRT	12												1.00	0.28	0.34	0.32	0.30	0.46
R206 COPYING:MRT	13													1.00	0.14	0.22	0.20	0.48
M112 VOCB:WPSI SCA	14														1.00	0.40	0.26	0.29
M114 SIML:WPSI SCA	15															1.00	-0.01	0.22
M117 P.CM:WPSI SCA	16																1.00	0.38
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21
104 GEO SHAP:IDFY	1	0.09	-0.01	0.09	0.07
110 COUNT MEMS:PC	2	0.12	0.17	0.02	0.14
111 CNT MEMS:OBJS	3	0.23	0.23	0.18	0.28
118 EQIV SETS:OBJS	4	0.01	0.19	0.18	0.18
119 EQIV SETS:DOTS	5	0.17	0.19	0.05	0.19
130 CLASFY(OVRLAP)	6	0.23	0.32	0.14	0.31
147 ORDRG:COMPOS	7	0.27	0.31	0.21	0.36
R201 WORD MEAN:MRT	8	0.27	0.27	0.29	0.37
R202 LISTENING:MRT	9	0.17	0.20	0.24	0.27
R203 MATCHING:MRT	10	0.17	0.23	0.22	0.28
R204 ALPHABET:MRT	11	0.14	0.11	0.07	0.14
R205 NUMBERS:MRT	12	0.08	0.24	0.24	0.26
R206 COPYING:MRT	13	0.15	0.19	0.29	0.28
M112 VOCB:WPSI SCA	14	0.12	0.30	0.32	0.34
M114 SIML:WPSI SCA	15	-0.04	0.22	0.08	0.14
M117 P.CM:WPSI SCA	16	0.15	0.13	0.21	0.21
M120 BLKD:WPSI SCA	17	0.30	0.42	0.48	0.54
M201 SET A:RAVEN	18	1.00	0.26	0.17	0.59
M202 SET AB:RAVEN	19		1.00	0.53	0.85
M203 SET B:RAVEN	20			1.00	0.77
M204 TOTAL:RAVEN	21				1.00

N = 115 FOR CELL B1

(CONTINUED)

TABLE A3.4
(SEVENTH PAGE)

RAVEN SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.17	0.06	0.09	0.00	0.02	0.04	0.09	0.20	-0.03	0.27	0.11	0.01	0.05	0.26	0.07	0.16
110 COUNT MEMS:PC	2		1.00	0.67	0.40	0.35	0.12	0.23	0.19	0.28	0.37	0.23	0.45	0.26	0.13	0.15	0.04	0.24
111 CNT MEMS:OBJS	3			1.00	0.42	0.43	0.15	0.20	0.16	0.26	0.32	0.23	0.38	0.27	0.12	0.02	0.04	0.18
118 EQIV SETS:OBJS	4				1.00	0.56	0.13	0.21	0.03	0.11	0.32	0.14	0.33	0.23	-0.04	-0.06	0.08	0.25
119 EQIV SETS:DOTS	5					1.00	0.16	0.26	0.11	0.09	0.30	0.25	0.33	0.34	0.00	-0.06	0.10	0.29
130 CLASFY(OVRLAP)	6						1.00	0.36	0.20	0.12	0.24	0.23	0.31	0.29	0.18	-0.06	0.28	0.11
147 ORDRG:COMPOS	7							1.00	0.38	0.33	0.40	0.12	0.54	0.44	0.26	-0.02	0.29	0.37
R201 WORD MEAN:MRT	8								1.00	0.49	0.23	0.16	0.40	0.33	0.41	0.05	0.23	0.16
R202 LISTENING:MRT	9									1.00	0.34	0.31	0.53	0.36	0.37	0.18	0.22	0.24
R203 MATCHING:MRT	10										1.00	0.29	0.60	0.46	0.17	0.15	0.27	0.38
R204 ALPHABET:MRT	11											1.00	0.43	0.25	0.10	0.17	0.07	0.16
R205 NUMBERS:MRT	12												1.00	0.51	0.23	0.13	0.16	0.33
R206 COPYING:MRT	13													1.00	0.17	0.02	0.35	0.40
M112 VOCB:WPSI SCA	14														1.00	0.23	0.32	0.09
M114 SIML:WPSI SCA	15															1.00	-0.03	-0.20
M117 P.CM:WPSI SCA	16																1.00	0.28
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21
104 GEO SHAP:IDFY	1	0.08	0.03	0.10	0.09
110 COUNT MEMS:PC	2	0.16	0.18	0.21	0.24
111 CNT MEMS:OBJS	3	0.14	0.11	0.17	0.18
118 EQIV SETS:OBJS	4	0.09	0.02	0.08	0.08
119 EQIV SETS:DOTS	5	0.21	0.12	0.11	0.18
130 CLASFY(OVRLAP)	6	0.13	0.26	0.20	0.26
147 ORDRG:COMPOS	7	0.31	0.36	0.35	0.44
R201 WORD MEAN:MRT	8	0.13	0.32	0.25	0.31
R202 LISTENING:MRT	9	0.15	0.27	0.30	0.32
R203 MATCHING:MRT	10	0.29	0.34	0.38	0.44
R204 ALPHABET:MRT	11	0.03	0.17	0.12	0.15
R205 NUMBERS:MRT	12	0.24	0.37	0.30	0.40
R206 COPYING:MRT	13	0.32	0.34	0.32	0.42
M112 VOCB:WPSI SCA	14	0.24	0.26	0.24	0.32
M114 SIML:WPSI SCA	15	0.00	0.09	0.10	0.09
M117 P.CM:WPSI SCA	16	0.21	0.40	0.24	0.38
M120 BLKD:WPSI SCA	17	0.42	0.32	0.22	0.40
M201 SET A:RAVEN	18	1.00	0.38	0.33	0.69
M202 SET AB:RAVEN	19		1.00	0.46	0.84
M203 SET B:RAVEN	20			1.00	0.78
M204 TOTAL:RAVEN	21				1.00

N = 151 FOR CELL C1

(CONTINUED)

TABLE A3.4
(EIGHTH PAGE)

RAVEN SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.13	-0.01	0.06	-0.08	0.28	0.23	0.06	0.20	0.18	0.09	-0.02	0.07	-0.13	0.11	-0.03	-0.01
110 COUNT MEMS:PC	2		1.00	0.68	0.27	0.38	0.51	0.43	0.23	0.31	0.28	0.39	0.51	0.41	0.16	0.25	0.28	0.27
111 CNT MEMS:OBJS	3			1.00	0.36	0.45	0.34	0.29	0.19	0.21	0.24	0.38	0.55	0.23	0.21	0.06	0.15	0.28
118 EQIV SETS:OBJS	4				1.00	0.58	-0.05	0.47	0.16	0.29	0.38	0.43	0.53	0.16	0.21	0.17	0.16	0.24
119 EQIV SETS:DOTS	5					1.00	0.14	0.40	0.24	0.20	0.33	0.38	0.42	0.06	0.17	0.07	0.29	0.14
130 CLASFY(OVRLAP)	6						1.00	0.23	0.16	0.16	-0.01	0.15	0.23	0.16	0.18	0.25	0.21	0.31
147 ORDRG:COMPOS	7							1.00	0.36	0.55	0.48	0.51	0.60	0.35	0.30	0.21	0.28	0.33
R201 WORD MEAN:MRT	8								1.00	0.52	0.25	0.22	0.46	0.21	0.29	0.29	0.15	0.20
R202 LISTENING:MRT	9									1.00	0.37	0.43	0.49	0.19	0.40	0.35	0.24	0.26
R203 MATCHING:MRT	10										1.00	0.35	0.50	0.33	0.01	0.15	0.26	0.16
R204 ALPHABET:MRT	11											1.00	0.62	0.18	0.35	0.26	0.24	0.22
R205 NUMBERS:MRT	12												1.00	0.31	0.28	0.30	0.37	0.41
R206 COPYING:MRT	13													1.00	0.02	0.21	-0.06	0.20
M112 VOCB:WPSI SCA	14														1.00	0.36	0.19	0.34
M114 SIML:WPSI SCA	15															1.00	0.24	0.28
M117 P.CM:WPSI SCA	16																1.00	0.51
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21
104 GEO SHAP:IDFY	1	0.05	0.09	-0.14	0.00
110 COUNT MEMS:PC	2	0.31	0.35	0.32	0.39
111 CNT MEMS:OBJS	3	0.40	0.44	0.40	0.50
118 EQIV SETS:OBJS	4	0.31	0.30	0.06	0.26
119 EQIV SETS:DOTS	5	0.32	0.32	0.18	0.32
130 CLASFY(OVRLAP)	6	0.03	0.27	0.24	0.24
147 ORDRG:COMPOS	7	0.33	0.42	0.22	0.39
R201 WORD MEAN:MRT	8	0.18	0.24	0.24	0.27
R202 LISTENING:MRT	9	0.34	0.36	0.33	0.41
R203 MATCHING:MRT	10	0.28	0.33	0.07	0.28
R204 ALPHABET:MRT	11	0.29	0.40	0.29	0.40
R205 NUMBERS:MRT	12	0.33	0.45	0.30	0.44
R206 COPYING:MRT	13	0.11	0.11	0.15	0.15
M112 VOCB:WPSI SCA	14	0.30	0.24	0.35	0.35
M114 SIML:WPSI SCA	15	0.22	0.09	0.13	0.17
M117 P.CM:WPSI SCA	16	0.41	0.47	0.23	0.45
M120 BLKD:WPSI SCA	17	0.37	0.50	0.40	0.52
M201 SET A:RAVEN	18	1.00	0.48	0.54	0.76
M202 SET AB:RAVEN	19		1.00	0.60	0.87
M203 SET B:RAVEN	20			1.00	0.85
M204 TOTAL:RAVEN	21				1.00

N = 62 FOR CELL D1

(CONTINUED)

TABLE A3.4
(NINTH PAGE)

SAT SCALE

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.09	0.07	0.11	0.15	0.07	0.14	0.26	0.10	0.16	0.26	0.17	0.10	0.19	0.14	0.21	0.25
110 COUNT MEMS:PC	2		1.00	0.54	0.48	0.48	0.29	0.38	0.26	0.36	0.33	0.35	0.38	0.31	0.13	0.21	0.09	0.33
111 CNT MEMS:OBJS	3			1.00	0.61	0.49	0.09	0.35	0.07	0.25	0.34	0.31	0.40	0.29	0.11	0.14	0.07	0.29
118 EQIV SETS:OBJS	4				1.00	0.73	0.14	0.35	0.23	0.40	0.41	0.38	0.42	0.41	0.21	0.12	0.18	0.32
119 EQIV SETS:DOTS	5					1.00	0.19	0.39	0.30	0.33	0.43	0.39	0.45	0.37	0.11	0.20	0.20	0.36
130 CLASFY(OVRLAP)	6						1.00	0.24	0.31	0.25	0.20	0.24	0.26	0.20	0.30	0.22	0.14	0.26
147 ORDRG:COMPCS	7							1.00	0.19	0.21	0.31	0.25	0.39	0.43	0.12	0.23	0.24	0.40
R201 WORD MEAN:MRT	8								1.00	0.54	0.42	0.45	0.46	0.26	0.37	0.17	0.38	0.45
R202 LISTENING:MRT	9									1.00	0.47	0.48	0.52	0.27	0.39	0.37	0.35	0.40
R203 MATCHING:MRT	10										1.00	0.49	0.55	0.37	0.22	0.16	0.21	0.39
R204 ALPHABET:MRT	11											1.00	0.65	0.41	0.40	0.28	0.32	0.35
R205 NUMBERS:MRT	12												1.00	0.42	0.33	0.23	0.24	0.54
R206 COPYING:MRT	13													1.00	0.18	0.01	0.27	0.41
M112 VOCB:WPSI SCA	14														1.00	0.46	0.41	0.34
M114 SIML:WPSI SCA	15															1.00	0.32	0.22
M117 P.CM:WPSI SCA	16																1.00	0.43
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.28
110 COUNT MEMS:PC	2	0.28
111 CNT MEMS:OBJS	3	0.21
118 EQIV SETS:OBJS	4	0.28
119 EQIV SETS:DOTS	5	0.30
130 CLASFY(OVRLAP)	6	0.11
147 ORDRG:COMPCS	7	0.37
R201 WORD MEAN:MRT	8	0.30
R202 LISTENING:MRT	9	0.39
R203 MATCHING:MRT	10	0.33
R204 ALPHABET:MRT	11	0.58
R205 NUMBERS:MRT	12	0.58
R206 COPYING:MRT	13	0.37
M112 VOCB:WPSI SCA	14	0.36
M114 SIML:WPSI SCA	15	0.25
M117 P.CM:WPSI SCA	16	0.25
M120 BLKD:WPSI SCA	17	0.36
A209 #RT:SAT TOTAL	18	1.00

N = 138 FOR CELL A1

(CONTINUED)

TABLE A3.4
(TENTH PAGE)

SAT SCALE

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.20	0.21	0.19	0.10	0.04	-0.03	0.28	0.27	0.15	0.15	0.26	0.01	0.20	0.16	0.09	0.13
110 COUNT MEMS:PC	2		1.00	0.69	0.37	0.48	0.24	0.31	0.18	0.13	0.27	0.12	0.40	0.27	0.12	0.14	0.13	0.32
111 CNT MEMS:OBJS	3			1.00	0.38	0.46	0.23	0.31	0.16	0.14	0.26	0.11	0.38	0.33	0.01	0.21	0.14	0.38
118 EQIV SETS:OBJS	4				1.00	0.50	0.20	0.20	0.19	0.17	0.31	0.25	0.38	0.36	0.20	0.24	0.22	0.33
119 EQIV SETS:COTS	5					1.00	0.42	0.31	0.13	0.16	0.35	0.20	0.31	0.27	0.13	0.13	0.18	0.32
130 CLASFY(OVRLAP)	6						1.00	0.43	0.39	0.28	0.20	0.18	0.23	0.17	0.31	0.30	0.17	0.32
147 ORDRG:COMPOS	7							1.00	0.38	0.30	0.36	0.23	0.39	0.35	0.31	0.19	0.29	0.46
R201 WORD MEAN:MRT	8								1.00	0.58	0.29	0.31	0.41	0.24	0.42	0.28	0.20	0.26
R202 LISTENING:MRT	9									1.00	0.40	0.28	0.34	0.28	0.32	0.41	0.27	0.32
R203 MATCHING:MRT	10										1.00	0.36	0.45	0.33	0.25	0.18	0.28	0.36
R204 ALPHABET:MRT	11											1.00	0.46	0.25	0.13	0.22	0.26	0.25
R205 NUMBERS:MRT	12												1.00	0.29	0.31	0.33	0.28	0.46
R206 COPYING:MRT	13													1.00	0.12	0.22	0.17	0.47
M112 VOCB:WPSI SCA	14														1.00	0.37	0.28	0.27
M114 SIML:WPSI SCA	15															1.00	0.01	0.19
M117 P.CM:WPSI SCA	16																1.00	0.35
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.18
110 COUNT MEMS:PC	2	0.29
111 CNT MEMS:OBJS	3	0.28
118 EQIV SETS:OBJS	4	0.26
119 EQIV SETS:COTS	5	0.22
130 CLASFY(OVRLAP)	6	0.18
147 ORDRG:COMPOS	7	0.33
R201 WORD MEAN:MRT	8	0.20
R202 LISTENING:MRT	9	0.23
R203 MATCHING:MRT	10	0.45
R204 ALPHABET:MRT	11	0.54
R205 NUMBERS:MRT	12	0.56
R206 COPYING:MRT	13	0.25
M112 VOCB:WPSI SCA	14	0.18
M114 SIML:WPSI SCA	15	0.28
M117 P.CM:WPSI SCA	16	0.15
M120 BLKD:WPSI SCA	17	0.39
A209 #RT:SAT TOTAL	18	1.00

N = 119 FOR CELL B1

(CONTINUED)

TABLE A3.4
(ELEVENTH PAGE)

SAT SCALE

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.15	0.05	0.07	-0.02	0.00	0.04	0.08	0.18	-0.05	0.27	0.08	-0.01	0.02	0.26	0.04	0.14
110 COUNT MEMS:PC	2		1.00	0.69	0.39	0.38	0.14	0.24	0.20	0.25	0.38	0.22	0.46	0.26	0.12	0.15	0.08	0.26
111 CNT MEMS:OBJS	3			1.00	0.41	0.45	0.20	0.23	0.17	0.24	0.34	0.22	0.41	0.27	0.10	0.03	0.09	0.21
118 EQIV SETS:OBJS	4				1.00	0.56	0.14	0.21	0.04	0.13	0.33	0.14	0.32	0.24	-0.03	-0.07	0.09	0.26
119 EQIV SETS:DOTS	5					1.00	0.19	0.24	0.13	0.10	0.31	0.23	0.34	0.34	0.03	-0.08	0.13	0.31
130 CLASFY(OVRLAP)	6						1.00	0.36	0.19	0.16	0.27	0.25	0.34	0.31	0.18	-0.05	0.29	0.12
147 ORDRG:COMPOS	7							1.00	0.35	0.31	0.33	0.13	0.53	0.43	0.20	-0.00	0.29	0.37
R201 WORD MEAN:MRT	8								1.00	0.48	0.24	0.16	0.38	0.32	0.34	0.02	0.22	0.13
R202 LISTENING:MRT	9									1.00	0.35	0.31	0.51	0.38	0.33	0.15	0.22	0.23
R203 MATCHING:MRT	10										1.00	0.29	0.61	0.47	0.15	0.14	0.29	0.39
R204 ALPHABET:MRT	11											1.00	0.42	0.26	0.08	0.17	0.06	0.18
R205 NUMBERS:MRT	12												1.00	0.52	0.20	0.12	0.20	0.33
R206 COPYING:MRT	13													1.00	0.17	0.02	0.36	0.48
M112 VOCB:WPSI SCA	14														1.00	0.23	0.31	0.10
M114 SIML:WPSI SCA	15															1.00	-0.03	0.00
M117 P.CM:WPSI SCA	16																1.00	0.30
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.19
110 COUNT MEMS:PC	2	0.39
111 CNT MEMS:OBJS	3	0.31
118 EQIV SETS:OBJS	4	0.39
119 EQIV SETS:DOTS	5	0.36
130 CLASFY(OVRLAP)	6	0.27
147 ORDRG:COMPOS	7	0.43
R201 WORD MEAN:MRT	8	0.37
R202 LISTENING:MRT	9	0.42
R203 MATCHING:MRT	10	0.56
R204 ALPHABET:MRT	11	0.47
R205 NUMBERS:MRT	12	0.63
R206 COPYING:MRT	13	0.47
M112 VOCB:WPSI SCA	14	0.14
M114 SIML:WPSI SCA	15	0.15
M117 P.CM:WPSI SCA	16	0.22
M120 BLKD:WPSI SCA	17	0.38
A209 #RT:SAT TOTAL	18	1.00

N = 160 FOR CELL C1

(CONTINUED)

TABLE A3.4
(TWELFTH PAGE)

SAT SCALE

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.10	-0.01	0.04	-0.07	0.26	0.22	0.16	0.26	0.15	0.14	0.02	0.09	-0.04	0.20	-0.02	-0.05
110 COUNT MEMS:PC	2		1.00	0.65	0.31	0.40	0.41	0.32	0.19	0.26	0.22	0.32	0.46	0.40	0.11	0.08	0.26	0.28
111 CNT MEMS:OBJS	3			1.00	0.39	0.39	0.29	0.22	0.14	0.18	0.18	0.26	0.46	0.21	0.20	-0.02	0.12	0.26
118 EQIV SETS:OBJS	4				1.00	0.55	-0.07	0.42	0.13	0.28	0.34	0.35	0.49	0.19	0.17	0.11	0.12	0.25
119 EQIV SETS:DOTS	5					1.00	0.12	0.36	0.23	0.21	0.31	0.35	0.41	0.13	0.13	-0.01	0.28	0.22
130 CLASFY(OVRLAP)	6						1.00	0.24	0.15	0.14	-0.02	0.14	0.24	0.14	0.18	0.24	0.20	0.30
147 ORDRG:COMPOS	7							1.00	0.31	0.44	0.45	0.49	0.55	0.31	0.26	0.18	0.23	0.30
R201 WORD MEAN:MRT	8								1.00	0.55	0.18	0.22	0.40	0.24	0.32	0.32	0.15	0.11
R202 LISTENING:MRT	9									1.00	0.24	0.37	0.44	0.26	0.39	0.35	0.25	0.18
R203 MATCHING:MRT	10										1.00	0.34	0.41	0.31	-0.02	0.11	0.26	0.17
R204 ALPHABET:MRT	11											1.00	0.60	0.21	0.30	0.21	0.23	0.19
R205 NUMBERS:MRT	12												1.00	0.39	0.21	0.20	0.34	0.42
R206 COPYING:MRT	13													1.00	0.01	0.13	-0.00	0.23
M112 VOCB:WPSI SCA	14														1.00	0.38	0.14	0.28
M114 SIML:WPSI SCA	15															1.00	0.22	0.15
M117 P.CM:WPSI SCA	16																1.00	0.44
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.16
110 COUNT MEMS:PC	2	0.34
111 CNT MEMS:OBJS	3	0.25
118 EQIV SETS:OBJS	4	0.33
119 EQIV SETS:DOTS	5	0.34
130 CLASFY(OVRLAP)	6	0.30
147 ORDRG:COMPOS	7	0.43
R201 WORD MEAN:MRT	8	0.17
R202 LISTENING:MRT	9	0.25
R203 MATCHING:MRT	10	0.34
R204 ALPHABET:MRT	11	0.67
R205 NUMBERS:MRT	12	0.60
R206 COPYING:MRT	13	0.30
M112 VOCB:WPSI SCA	14	0.15
M114 SIML:WPSI SCA	15	0.20
M117 P.CM:WPSI SCA	16	0.26
M120 BLKD:WPSI SCA	17	0.32
A209 ART:SAT TOTAL	18	1.00

N = 79 FOR CELL D1

(CONTINUED)

TABLE A3.4
(THIRTEENTH PAGE)

SAT SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.04	0.07	0.11	0.10	0.05	0.14	0.21	0.05	0.09	0.25	0.14	0.11	0.19	0.09	0.18	0.22
110 COUNT MEMS:PC	2		1.00	0.57	0.40	0.39	0.19	0.27	0.12	0.27	0.20	0.26	0.28	0.25	0.10	0.18	0.04	0.26
111 CNT MEMS:OBJS	3			1.00	0.58	0.50	0.04	0.37	0.04	0.22	0.31	0.31	0.36	0.20	0.11	0.14	0.06	0.24
118 EQIV SETS:OBJS	4				1.00	0.74	0.03	0.29	0.13	0.32	0.35	0.30	0.36	0.33	0.16	0.09	0.18	0.28
119 EQIV SETS:DOTS	5					1.00	0.14	0.35	0.20	0.31	0.35	0.34	0.42	0.31	0.15	0.21	0.24	0.39
130 CLASFY(OVRLAP)	6						1.00	0.14	0.23	0.13	0.06	0.15	0.18	0.10	0.25	0.16	0.11	0.19
147 ORDRG:COMPOS	7							1.00	0.10	0.18	0.25	0.21	0.31	0.43	0.11	0.24	0.29	0.34
R201 WORD MEAN:MRT	8								1.00	0.49	0.37	0.42	0.42	0.22	0.41	0.12	0.39	0.44
R202 LISTENING:MRT	9									1.00	0.44	0.44	0.49	0.22	0.36	0.34	0.34	0.41
R203 MATCHING:MRT	10										1.00	0.42	0.49	0.32	0.22	0.11	0.19	0.35
R204 ALPHABET:MRT	11											1.00	0.67	0.37	0.40	0.26	0.35	0.34
R205 NUMBERS:MRT	12												1.00	0.39	0.35	0.20	0.25	0.48
R206 COPYING:MRT	13													1.00	0.20	-0.01	0.32	0.39
M112 VOCB:WPSI SCA	14														1.00	0.43	0.47	0.39
M114 SIML:WPSI SCA	15															1.00	0.29	0.20
M117 P.CM:WPSI SCA	16																1.00	0.50
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.23
110 COUNT MEMS:PC	2	0.12
111 CNT MEMS:OBJS	3	0.15
118 EQIV SETS:OBJS	4	0.29
119 EQIV SETS:DOTS	5	0.16
130 CLASFY(OVRLAP)	6	0.11
147 ORDRG:COMPOS	7	0.36
R201 WORD MEAN:MRT	8	0.26
R202 LISTENING:MRT	9	0.17
R203 MATCHING:MRT	10	0.23
R204 ALPHABET:MRT	11	0.37
R205 NUMBERS:MRT	12	0.39
R206 COPYING:MRT	13	0.45
M112 VOCB:WPSI SCA	14	0.31
M114 SIML:WPSI SCA	15	0.07
M117 P.CM:WPSI SCA	16	0.38
M120 BLKD:WPSI SCA	17	0.34
M324 IQ:KUHL-ANDER	18	1.00

N = 111 FOR CELL A1

(CONTINUED)

TABLE A3.4
(FOURTEENTH PAGE)

KUHLMANN-ANDERSON SCALE

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.25	0.25	0.22	0.12	0.02	-0.05	0.30	0.26	0.16	0.17	0.24	-0.02	0.19	0.14	0.11	0.13
110 COUNT MEMS:PC	2		1.00	0.71	0.43	0.52	0.28	0.35	0.26	0.13	0.31	0.13	0.40	0.22	0.13	0.09	0.08	0.31
111 CNT MEMS:OBJS	3			1.00	0.45	0.53	0.24	0.34	0.19	0.13	0.27	0.12	0.35	0.33	0.04	0.23	0.12	0.38
118 EQIV SETS:OBJS	4				1.00	0.51	0.22	0.23	0.22	0.20	0.37	0.25	0.40	0.37	0.23	0.25	0.30	0.36
119 EQIV SETS:DOTS	5					1.00	0.46	0.35	0.20	0.17	0.38	0.23	0.36	0.27	0.17	0.18	0.21	0.31
130 CLASFY(OVRLAP)	6						1.00	0.41	0.40	0.27	0.22	0.19	0.24	0.17	0.35	0.33	0.21	0.34
147 ORDRG:COMPOS	7							1.00	0.38	0.28	0.40	0.26	0.42	0.36	0.36	0.20	0.37	0.48
R201 WORD MEAN:MRT	8								1.00	0.60	0.31	0.33	0.47	0.26	0.49	0.32	0.27	0.27
R202 LISTENING:MRT	9									1.00	0.41	0.31	0.35	0.24	0.39	0.43	0.30	0.30
R203 MATCHING:MRT	10										1.00	0.41	0.48	0.36	0.27	0.18	0.33	0.31
R204 ALPHABET:MRT	11											1.00	0.51	0.28	0.20	0.21	0.29	0.28
R205 NUMBERS:MRT	12												1.00	0.26	0.32	0.27	0.32	0.45
R206 COPYING:MRT	13													1.00	0.09	0.15	0.21	0.49
M112 VOCB:WPSI SCA	14														1.00	0.38	0.32	0.30
M114 SIML:WPSI SCA	15															1.00	0.05	0.18
M117 P.CM:WPSI SCA	16																1.00	0.39
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.26
110 COUNT MEMS:PC	2	0.35
111 CNT MEMS:OBJS	3	0.30
118 EQIV SETS:OBJS	4	0.41
119 EQIV SETS:DOTS	5	0.46
130 CLASFY(OVRLAP)	6	0.38
147 ORDRG:COMPOS	7	0.45
R201 WORD MEAN:MRT	8	0.35
R202 LISTENING:MRT	9	0.28
R203 MATCHING:MRT	10	0.52
R204 ALPHABET:MRT	11	0.44
R205 NUMBERS:MRT	12	0.62
R206 COPYING:MRT	13	0.33
M112 VOCB:WPSI SCA	14	0.44
M114 SIML:WPSI SCA	15	0.23
M117 P.CM:WPSI SCA	16	0.36
M120 BLKD:WPSI SCA	17	0.50
M324 IQ:KUHL-ANDER	18	1.00

N = 102 FOR CELL B1

(CONTINUED)

TABLE A3.4
(FIFTEENTH PAGE)

KUHLMANN-ANDERSON SCALE

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.23	0.09	0.10	-0.02	0.01	0.04	0.09	0.16	-0.06	0.29	0.10	0.06	0.03	0.24	-0.02	0.17
110 COUNT MEMS:PC	2		1.00	0.63	0.40	0.37	0.06	0.20	0.18	0.25	0.33	0.18	0.40	0.22	0.09	0.16	0.02	0.19
111 CNT MEMS:OBJS	3			1.00	0.40	0.42	0.10	0.21	0.14	0.19	0.30	0.17	0.33	0.30	0.01	-0.00	0.05	0.19
118 EQIV SETS:CBJS	4				1.00	0.61	0.19	0.23	0.08	0.16	0.33	0.10	0.34	0.32	0.03	-0.10	0.10	0.24
119 EQIV SETS:DCTS	5					1.00	0.17	0.20	0.10	-0.01	0.27	0.20	0.29	0.30	0.02	-0.13	0.09	0.25
130 CLASFY(OVRLAP)	6						1.00	0.35	0.15	0.14	0.27	0.24	0.29	0.32	0.11	-0.13	0.27	0.10
147 ORDRG:CCMPCS	7							1.00	0.35	0.28	0.38	0.07	0.50	0.39	0.20	0.01	0.20	0.30
R201 WORD MEAN:MRT	8								1.00	0.47	0.23	0.14	0.32	0.27	0.32	0.02	0.18	0.08
R202 LISTENING:MRT	9									1.00	0.35	0.30	0.47	0.38	0.34	0.22	0.14	0.16
R203 MATCHING:MRT	10										1.00	0.23	0.55	0.38	0.17	0.11	0.18	0.28
R204 ALPHABET:MRT	11											1.00	0.36	0.18	0.06	0.15	-0.01	0.07
R205 NUMBERS:MRT	12												1.00	0.42	0.18	0.14	0.05	0.21
R206 COPYING:MRT	13													1.00	0.16	0.05	0.29	0.39
M112 VOCB:WPSI SCA	14														1.00	0.29	0.33	0.12
M114 SIML:WPSI SCA	15															1.00	-0.05	0.01
M117 P.CM:WPSI SCA	16																1.00	0.20
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.21
110 COUNT MEMS:PC	2	0.35
111 CNT MEMS:OBJS	3	0.29
118 EQIV SETS:CBJS	4	0.36
119 EQIV SETS:DOTS	5	0.33
130 CLASFY(OVRLAP)	6	0.26
147 ORDRG:CCMPOS	7	0.40
R201 WORD MEAN:MRT	8	0.27
R202 LISTENING:MRT	9	0.36
R203 MATCHING:MRT	10	0.41
R204 ALPHABET:MRT	11	0.19
R205 NUMBERS:MRT	12	0.49
R206 COPYING:MRT	13	0.56
M112 VOCB:WPSI SCA	14	0.21
M114 SIML:WPSI SCA	15	0.17
M117 P.CM:WPSI SCA	16	0.20
M120 BLKD:WPSI SCA	17	0.58
P324 IQ:KUHL-ANDER	18	1.00

N = 124 FOR CELL C1

(CONTINUED)

TABLE A3.4
(SIXTEENTH PAGE)

KUHLMANN-ANDERSON SCALE

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.05	-0.13	0.04	-0.07	0.19	0.25	0.11	0.25	0.05	0.16	-0.01	0.01	0.09	0.26	0.11	0.01
110 COUNT MEMS:PC	2		1.00	0.64	0.34	0.41	0.46	0.34	0.17	0.24	0.38	0.34	0.44	0.36	0.22	0.14	0.36	0.30
111 CNT MEMS:OBJS	3			1.00	0.41	0.38	0.23	0.19	0.12	0.13	0.25	0.22	0.42	0.17	0.26	0.02	0.17	0.27
118 EQIV SETS:OBJS	4				1.00	0.56	-0.08	0.39	0.12	0.29	0.36	0.37	0.49	0.17	0.16	0.12	0.17	0.22
119 EQIV SETS:DOTS	5					1.00	0.08	0.36	0.19	0.18	0.39	0.33	0.36	0.11	0.12	0.01	0.29	0.17
130 CLASFY(OVRLAP)	6						1.00	0.17	0.05	0.05	-0.02	0.04	0.15	0.15	0.16	0.21	0.24	0.29
147 ORDRG:COMPOS	7							1.00	0.30	0.45	0.52	0.51	0.51	0.28	0.22	0.15	0.29	0.26
R201 WORD MEAN:MRT	8								1.00	0.55	0.17	0.23	0.37	0.27	0.40	0.35	0.20	0.06
R202 LISTENING:MRT	9									1.00	0.31	0.36	0.42	0.27	0.44	0.38	0.30	0.17
R203 MATCHING:MRT	10										1.00	0.4.	0.52	0.36	0.04	0.14	0.35	0.23
R204 ALPHABET:MRT	11											1.00	0.60	0.22	0.31	0.24	0.20	0.16
R205 NUMBERS:MRT	12												1.00	0.39	0.18	0.23	0.36	0.36
R206 COPYING:MRT	13													1.00	0.05	0.17	0.07	0.27
M112 VOCB:WPSI SCA	14														1.00	0.36	0.07	0.21
M114 SIML:WPSI SCA	15															1.00	0.23	0.13
M117 P.CH:WPSI SCA	16																1.00	0.42
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.17
110 COUNT MEMS:PC	2	0.42
111 CNT MEMS:OBJS	3	0.36
118 EQIV SETS:OBJS	4	0.40
119 EQIV SETS:DOTS	5	0.28
130 CLASFY(OVRLAP)	6	0.27
147 ORDRG:COMPOS	7	0.44
R201 WORD MEAN:MRT	8	0.24
R202 LISTENING:MRT	9	0.42
R203 MATCHING:MRT	10	0.33
R204 ALPHABET:MRT	11	0.53
R205 NUMBERS:MRT	12	0.58
R206 COPYING:MRT	13	0.54
M112 VOCB:WPSI SCA	14	0.26
M114 SIML:WPSI SCA	15	0.36
M117 P.CH:WPSI SCA	16	0.30
M120 BLKD:WPSI SCA	17	0.59
M324 IQ:KUHL-ANDER	18	1.00

N = 67 FOR CELL D1

Table A3.5
Regression Weights by Cell
for End-of-First-Grade Scales
Using End-of-Kindergarten Scales as Covariates
Selected Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 306 PLACE VALUE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M114 SIML:WPSI SCA	0.293	0.152	0.067	0.127	0.161	0.192
M120 BLKD:WPSI SCA	0.135	0.237	0.231	0.307	0.247	0.257
R205 NUMBERS:MRT	0.320	0.356	0.366	0.348	0.342	0.379

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M114 SIML:WPSI SCA	0.205	0.110	0.049	0.092	0.117	0.132
M120 BLKD:WPSI SCA	0.105	0.231	0.219	0.239	0.192	0.200
R205 NUMBERS:MRT	0.155	0.173	0.178	0.169	0.166	0.194
RSQ	0.333	0.353	0.307	0.422	0.331	0.396
P	0.577	0.593	0.554	0.650	0.575	0.629
F	24.012	20.002	22.741	17.704	89.648	106.372
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 307 NUMBER COMPARISON: ORDER

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
130,CLASFY(OVRLAP)	0.139	0.406	0.191	0.537	0.196	0.217
147 ORDRG:COMPOS	0.031	0.154	0.123	0.439	0.133	0.162
R203 MATCHING:MRT	0.171	0.153	0.329	-0.183	0.180	0.187
R205 NUMBERS:MRT	0.247	0.237	0.186	0.297	0.219	0.227

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
130,CLASFY(OVRLAP)	0.183	0.536	0.239	0.709	0.259	0.286
147 ORDRG:COMPOS	0.013	0.066	0.051	0.182	0.055	0.067
R203 MATCHING:MRT	0.178	0.170	0.151	-0.084	0.083	0.086
R205 NUMBERS:MRT	0.099	0.096	0.069	0.110	0.091	0.084
RSQ	0.223	0.190	0.407	0.561	0.279	0.363
P	0.472	0.435	0.638	0.724	0.528	0.603
F	9.878	6.526	24.304	25.577	67.512	78.064
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A3.5
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 308 NUMBER LINE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M120 BLKD:WPSI SCA	0.128	0.247	0.054	0.164	0.135	0.142
R202 LISTENING:MRT	0.234	0.051	-0.004	0.229	0.124	0.158
R203 MATCHING:MRT	0.178	0.122	0.243	0.172	0.198	0.221
R205 NUMBERS:MRT	0.218	0.116	0.250	0.023	0.177	0.179

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M120 BLKD:WPSI SCA	0.061	0.118	0.026	0.079	0.065	0.068
R202 LISTENING:MRT	0.116	0.024	-0.002	0.108	0.059	0.074
R203 MATCHING:MRT	0.068	0.046	0.092	0.065	0.075	0.084
R205 NUMBERS:MRT	0.065	0.035	0.075	0.007	0.053	0.054
RSQ	0.389	0.204	0.227	0.202	0.235	0.303
R	0.624	0.451	0.476	0.449	0.505	0.551
F	21.167	7.792	11.309	4.616	41.639	52.387
P	0.000	0.000	0.000	0.002	0.000	0.000

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DEPENDENT VARIABLE -- 309 APPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPCS	0.120	0.171	0.081	0.219	0.111	0.143
M114 SIML:WPSI SCA	0.140	0.268	0.143	0.266	0.160	0.172
M117 P.CM:WPSI SCA	0.083	0.083	0.128	0.134	0.107	0.116
R205 NUMBERS:MRT	0.417	0.488	0.235	0.332	0.358	0.375

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPCS	0.052	0.075	0.035	0.095	0.048	0.063
M114 SIML:WPSI SCA	0.080	0.156	0.082	0.152	0.092	0.097
M117 P.CM:WPSI SCA	0.050	0.032	0.077	0.081	0.064	0.070
R205 NUMBERS:MRT	0.160	0.138	0.090	0.127	0.138	0.144
RSQ	0.377	0.344	0.155	0.355	0.230	0.357
R	0.614	0.583	0.393	0.596	0.529	0.598
F	20.252	15.089	7.179	10.210	43.141	69.502
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A3.5
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 313 COMPUTATION: MULTIPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
R205 NUMBERS:MRT	0.214	0.348	0.205	0.555	0.290	0.346
M120 BLKD:WPSI SCA	0.045	0.238	0.092	0.051	0.102	0.129

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
R205 NUMBERS:MRT	0.034	0.056	0.033	0.089	0.046	0.055
M120 BLKD:WPSI SCA	0.011	0.061	0.024	0.013	0.026	0.033
RSQ	0.133	0.117	0.141	0.242	0.128	0.181
R	0.365	0.342	0.376	0.492	0.358	0.426
F	10.377	7.508	13.061	11.952	36.002	54.432
P	0.000	0.001	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 321 IDENTIFYING TRIANGLES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	0.095	0.204	0.103	0.167	0.132	0.137
M112 VOCB:WPSI SCA	0.031	0.239	0.062	0.240	0.129	0.119
R201 WORD MEAN:MRT	-0.234	-0.179	-0.184	-0.074	-0.183	-0.218
R204 ALPHABET:MRT	-0.038	-0.101	-0.038	-0.100	-0.094	-0.136
R205 NUMBERS:MRT	0.268	0.398	0.183	0.111	0.245	0.242

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	0.188	0.402	0.202	0.329	0.260	0.270
M112 VOCB:WPSI SCA	0.020	0.154	0.040	0.154	0.083	0.077
R201 WORD MEAN:MRT	-0.137	-0.105	-0.108	-0.043	-0.107	-0.128
R204 ALPHABET:MRT	-0.045	-0.046	-0.017	-0.046	-0.043	-0.062
R205 NUMBERS:MRT	0.114	0.170	0.078	0.047	0.104	0.103
RSQ	0.086	0.193	0.040	0.065	0.071	0.070
R	0.294	0.439	0.201	0.255	0.267	0.265
F	2.532	5.246	1.272	0.973	7.390	7.322
P	0.032	0.000	0.279	0.441	0.000	0.000

(continued)

Table A3.5
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 311 COMPUTATION: ADDITION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.150	0.176	-0.006	0.247	0.098	0.106
119 EQIV SETS:DOTS	0.037	0.094	0.199	0.025	0.116	0.119
M120 BLKD:WPSI SCA	0.195	0.104	0.251	0.035	0.186	0.198
R205 NUMBERS:MRT	0.488	0.387	0.214	0.287	0.328	0.372

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.122	0.143	-0.005	0.202	0.080	0.087
119 EQIV SETS:DOTS	0.057	0.147	0.311	0.039	0.182	0.186
M120 BLKD:WPSI SCA	0.177	0.095	0.227	0.032	0.168	0.179
R205 NUMBERS:MRT	0.276	0.218	0.121	0.162	0.186	0.210
RSQ	0.407	0.336	0.273	0.468	0.328	0.396
R	0.638	0.580	0.522	0.684	0.573	0.629
F	22.824	14.050	14.734	16.077	59.726	79.994
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 312 COMPUTATION: SUBTRACTION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M114 SIML:WPSI SCA	0.286	0.116	-0.027	0.170	0.133	0.154
R204 ALPHABET:MRT	0.142	0.206	0.037	-0.051	0.090	0.088
R205 NUMBERS:MRT	0.290	0.330	0.396	0.403	0.356	0.407
R206 COPYING:MRT	0.068	0.212	0.227	0.126	0.167	0.176

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M114 SIML:WPSI SCA	0.314	0.129	-0.029	0.186	0.147	0.169
R204 ALPHABET:MRT	0.114	0.165	0.029	-0.040	0.072	0.070
R205 NUMBERS:MRT	0.214	0.244	0.293	0.298	0.263	0.301
R206 COPYING:MRT	0.088	0.271	0.291	0.161	0.214	0.225
RSQ	0.344	0.390	0.319	0.408	0.324	0.398
R	0.587	0.624	0.564	0.638	0.569	0.631
F	17.188	17.732	18.356	12.553	58.268	80.572
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A3.5
(fifth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 322 IDENTIFYING RECTANGLES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	0.236	0.126	0.097	0.178	0.151	0.146
M120 BLKD:WPSI SCA	0.014	0.167	0.154	0.281	0.134	0.128
R205 NUMBERS:MRT	0.246	0.102	0.235	0.105	0.185	0.153

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	0.375	0.200	0.153	0.282	0.240	0.232
M120 BLKD:WPSI SCA	0.007	0.091	0.084	0.153	0.073	0.069
R205 NUMBERS:MRT	0.083	0.034	0.080	0.036	0.063	0.052
RSQ	0.170	0.095	0.091	0.131	0.108	0.093
R	0.412	0.308	0.302	0.361	0.329	0.305
F	9.426	3.919	5.154	3.657	10.314	16.758
P	0.000	0.011	0.002	0.016	0.000	0.000

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DEPENDENT VARIABLE -- 323 CURVED FIGURES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	-0.178	-0.147	-0.185	-0.143	-0.160	-0.145
M114 SIML:WPSI SCA	-0.091	0.021	0.049	0.071	0.010	0.021
R203 MATCHING:MRT	-0.036	-0.041	-0.167	0.074	-0.145	-0.120
R204 ALPHABET:MRT	0.064	0.271	0.130	-0.104	0.115	0.122

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	-0.285	-0.243	-0.336	-0.244	-0.283	-0.242
M114 SIML:WPSI SCA	-0.048	0.011	0.047	0.038	0.005	0.011
R203 MATCHING:MRT	-0.016	-0.018	-0.163	0.033	-0.064	-0.053
R204 ALPHABET:MRT	0.024	0.102	0.049	-0.039	0.043	0.046
RSQ	0.054	0.061	0.122	0.025	0.038	0.033
R	0.232	0.247	0.350	0.158	0.195	0.182
F	1.941	1.798	5.325	0.463	4.808	4.165
P	0.107	0.134	0.000	0.759	0.001	0.003

(continued)

Table A3.5
(sixth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 329 COMPREHENSION (GROUP)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.141	0.054	0.117	0.091	0.114	0.099
147 ORORG:COMPOS	0.123	0.077	0.031	0.137	0.078	0.126
R205 NUMBERS:MRT	0.227	0.480	0.294	0.444	0.337	0.342

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.049	0.035	0.044	0.034	0.042	0.037
147 ORORG:COMPOS	0.036	0.023	0.009	0.040	0.023	0.037
R205 NUMBERS:MRT	0.059	0.124	0.076	0.115	0.087	0.088
RSQ	0.168	0.212	0.173	0.267	0.188	0.228
R	0.409	0.460	0.416	0.517	0.434	0.477
F	9.129	10.404	11.131	9.228	38.714	49.180
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 329 COMPREHENSION (INDIVIDUAL)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.185	0.105	0.140	0.044	0.153	0.174
M129 BLKD:WPSI SCA	-0.140	0.207	0.263	0.276	0.163	0.191
R205 NUMBERS:MRT	0.269	0.334	0.232	0.328	0.207	0.260

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.094	0.087	0.062	0.019	0.068	0.077
M129 BLKD:WPSI SCA	-0.120	0.101	0.128	0.134	0.079	0.093
R205 NUMBERS:MRT	0.142	0.212	0.071	0.100	0.063	0.079
RSQ	0.163	0.144	0.241	0.259	0.183	0.248
R	0.236	0.380	0.491	0.547	0.422	0.496
F	8.730	6.352	16.753	10.904	37.340	54.167
P	0.000	0.001	0.000	0.000	0.000	0.000

(continued)

Table A3.5
(seventh page)

B. Raven Scales

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DEPENDENT VARIABLE -- M201 RAVEN SET A

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 CRDRG:COMPOS	0.002	0.220	0.127	0.204	0.119	0.157
M120 BLKD:WPSI SCA	0.076	0.252	0.278	0.341	0.221	0.218
R203 MATCHING:MRT	0.142	0.049	0.087	0.235	0.117	0.125
R206 COPYING:MRT	0.289	-0.035	0.088	-0.068	0.089	0.084

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 CRDRG:COMPOS	0.001	0.083	0.048	0.077	0.045	0.059
M120 BLKD:WPSI SCA	0.040	0.133	0.147	0.180	0.117	0.115
R203 MATCHING:MRT	0.059	0.020	0.036	0.098	0.049	0.052
R206 COPYING:MRT	0.164	-0.020	0.050	-0.039	0.051	0.048
RSQ	0.231	0.114	0.214	0.209	0.167	0.202
R	0.481	0.340	0.463	0.457	0.409	0.450
F	9.610	3.601	10.088	3.767	22.994	29.017
P	0.000	0.008	0.000	0.009	0.000	0.000

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DEPENDENT VARIABLE -- M202 RAVEN SET AB

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 CRDRG:COMPOS	0.051	0.117	0.145	0.251	0.136	0.174
M120 BLKD:WPSI SCA	0.239	0.343	0.159	0.466	0.250	0.249
R201 WORD MEAN:MRT	0.091	0.158	0.194	0.067	0.143	0.192
R203 MATCHING:MRT	0.085	0.047	0.160	0.232	0.106	0.111

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 CRDRG:COMPOS	0.023	0.069	0.080	0.138	0.075	0.096
M120 BLKD:WPSI SCA	0.136	0.266	0.123	0.362	0.194	0.193
R201 WORD MEAN:MRT	0.062	0.107	0.132	0.046	0.097	0.131
R203 MATCHING:MRT	0.052	0.029	0.097	0.142	0.065	0.068
RSQ	0.194	0.213	0.230	0.366	0.219	0.295
R	0.440	0.462	0.479	0.605	0.468	0.544
F	7.759	7.464	11.097	8.385	32.258	48.333
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A3.5
(eighth page)

B. Raven Scales (continued)

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DEPENDENT VARIABLE -- M203 RAVEN SET B

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M112 VOCB:WPSI SCA	0.094	0.162	0.184	0.247	0.177	0.206
M120 BLKD:WPSI SCA	0.161	0.384	0.091	0.335	0.211	0.215
R201 WORD MEAN:MRT	0.120	0.113	0.110	0.123	0.113	0.150
R206 COPYING:MRT	0.172	0.073	0.206	0.083	0.141	0.148

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M112 VOCB:WPSI SCA	0.056	0.096	0.109	0.146	0.104	0.122
M120 BLKD:WPSI SCA	0.101	0.242	0.057	0.210	0.133	0.135
R201 WORD MEAN:MRT	0.066	0.062	0.060	0.067	0.062	0.083
R206 COPYING:MRT	0.116	0.049	0.138	0.056	0.095	0.099
RSQ	0.239	0.279	0.155	0.226	0.201	0.273
R	0.489	0.528	0.394	0.476	0.448	0.522
F	9.995	10.652	6.849	4.169	28.762	42.995
P	0.000	0.000	0.000	0.005	0.000	0.000

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DEPENDENT VARIABLE -- M204 RAVEN TOTAL SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 CRDRG:COMPOS	0.011	0.059	0.192	0.271	0.131	0.166
M112 VOCB:WPSI SCA	-0.018	0.122	0.199	0.148	0.128	0.161
M120 BLKD:WPSI SCA	0.197	0.432	0.206	0.477	0.285	0.278
R201 WORD MEAN:MRT	0.160	0.195	0.064	0.102	0.126	0.161
R206 COPYING:MRT	0.287	-0.004	0.155	-0.021	0.121	0.119

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 CRDRG:COMPOS	0.012	0.068	0.210	0.297	0.143	0.182
M112 VOCB:WPSI SCA	-0.028	0.176	0.289	0.215	0.186	0.234
M120 BLKD:WPSI SCA	0.305	0.668	0.319	0.738	0.440	0.430
R201 WORD MEAN:MRT	0.216	0.264	0.086	0.138	0.170	0.217
R206 COPYING:MRT	0.475	-0.006	0.257	-0.036	0.200	0.197
RSQ	0.398	0.459	0.334	0.348	0.323	0.410
R	0.631	0.693	0.578	0.590	0.568	0.640
F	16.688	12.227	14.874	5.965	43.425	63.501
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A3.5
(ninth page)

C. SAT Scale

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DEPENDENT VARIABLE -- A209 SAT-1 TOTAL READING NUMBER RIGHT

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M120 BLKD:WPSI SCA	0.061	0.160	0.191	0.123	0.126	0.132
R204 ALPHABET:MRT	0.281	0.403	0.245	0.598	0.307	0.276
R205 NUMBERS:MRT	0.298	0.375	0.471	0.268	0.384	0.414

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M120 BLKD:WPSI SCA	0.384	1.017	1.210	0.781	0.801	0.835
R204 ALPHABET:MRT	1.205	1.728	1.049	2.566	1.319	1.184
R205 NUMBERS:MRT	1.151	1.496	1.881	1.073	1.535	1.651
RSQ	0.400	0.434	0.485	0.512	0.435	0.464
R	0.633	0.659	0.697	0.716	0.660	0.681
F	30.275	29.373	50.288	26.595	128.300	144.108
P	0.000	0.000	0.000	0.000	0.000	0.0

(continued)

Table A3.5
(tenth page)

D. Kuhlmann-Anderson Scale

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DEPENDENT VARIABLE -- M324 KUHLMANN-ANDERSON I.Q.

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M112 VOCB:WPSI SCA	0.190	0.237	0.065	0.111	0.139	0.136
M120 BLKD:WPSI SCA	0.050	0.190	0.391	0.378	0.248	0.243
R205 NUMBERS:MRT	0.158	0.462	0.282	0.298	0.283	0.260
R206 COPYING:MRT	0.331	0.108	0.259	0.293	0.244	0.233

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M112 VOCB:WPSI SCA	0.939	1.173	0.320	0.547	0.685	0.671
M120 BLKD:WPSI SCA	0.263	0.999	2.055	1.986	1.303	1.276
R205 NUMBERS:MRT	0.536	1.566	0.955	1.011	0.959	0.881
R206 COPYING:MRT	1.936	0.632	1.515	1.713	1.424	1.360
RSQ	0.254	0.465	0.532	0.594	0.404	0.406
R	0.504	0.704	0.730	0.771	0.635	0.637
F	9.088	23.782	34.707	22.675	68.187	68.952
P	0.000	0.000	0.000	0.000	0.000	0.000

Table A4.1
Correlations of End-of-Second-Grade Scales and End-of-First-Grade Scales (Excluding Raven Scales)
Total Sample

A. Mathematics Scales

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	501 VOCABULARY	1.00	0.55	0.71	0.61	0.39	0.59	0.36	0.55	0.17	0.51	0.53	0.46	0.16
2	502 COMPREHENSION		1.00	0.56	0.54	0.36	0.53	0.30	0.49	0.14	0.51	0.52	0.47	0.15
3	503 NUMBER CMPARSN			1.00	0.58	0.40	0.55	0.35	0.53	0.14	0.55	0.52	0.50	0.19
4	504 PLACE VALUE				1.00	0.41	0.57	0.37	0.49	0.10	0.55	0.55	0.58	0.19
5	505 NUMBER LINE					1.00	0.35	0.27	0.35	0.12	0.32	0.32	0.31	0.21
6	506 APPLICATION						1.00	0.39	0.53	0.17	0.58	0.58	0.50	0.16
7	507 RATIONALS							1.00	0.30	0.11	0.34	0.36	0.38	0.06
8	508 ORDR:PICSET:GR								1.00	0.12	0.49	0.52	0.43	0.12
9	509 COUNTING:GROUP									1.00	0.15	0.16	0.14	-0.03
10	510 COMPUTE:ADD										1.00	0.71	0.55	0.05
11	511 COMPUTE:SUB											1.00	0.55	0.08
12	512 COMPUTE:MULT												1.00	0.08
13	521 IDFY POLYGS													1.00

		14	15	16	17	18	19
1	501 VOCABULARY	0.02	0.21	0.05	0.10	0.52	0.55
2	502 COMPREHENSION	-0.02	0.19	0.03	0.07	0.47	0.44
3	503 NUMBER CMPARSN	0.04	0.19	0.06	0.05	0.53	0.54
4	504 PLACE VALUE	0.02	0.22	0.02	0.10	0.52	0.47
5	505 NUMBER LINE	-0.05	0.21	0.04	0.10	0.35	0.37
6	506 APPLICATION	0.04	0.17	0.05	0.02	0.52	0.44
7	507 RATIONALS	0.03	0.11	0.02	0.05	0.34	0.30
8	508 ORDR:PICSET:GR	0.02	0.13	0.02	0.07	0.45	0.43
9	509 COUNTING:GROUP	0.05	-0.02	0.01	-0.01	0.11	0.12
10	510 COMPUTE:ADD	0.06	0.13	0.01	0.06	0.52	0.48
11	511 COMPUTE:SUB	0.04	0.12	0.01	0.09	0.50	0.46
12	512 COMPUTE:MULT	0.07	0.14	0.01	0.15	0.51	0.42
13	521 IDFY POLYGS	-0.19	0.17	0.07	0.02	0.10	0.13
14	522 CRVD&OPEN FIGS	1.00	-0.12	-0.01	0.00	0.01	-0.02
15	523 IDFY TRIANGS		1.00	0.09	-0.05	0.20	0.17
16	524 CONGRUENCE			1.00	-0.33	0.08	0.02
17	525 SIMILARITY				1.00	0.08	0.02
18	306 PLACE VALUE					1.00	0.49
19	307 NUMBER CMPARSN						1.00

(continued)

Table A4.1 (second page) -- A. Mathematics Scales (continued)

		20	21	22	23	24	25	26	27	28	29	30	31	32
1	501 VOCABULARY	0.46	0.53	0.10	0.47	0.53	0.31	0.15	0.30	-0.06	0.38	0.45	0.51	0.58
2	502 COMPREHENSION	0.45	0.43	0.08	0.45	0.51	0.34	0.11	0.21	-0.04	0.34	0.43	0.50	0.54
3	503 NUMBER CMPARSN	0.53	0.52	0.10	0.49	0.53	0.30	0.14	0.31	-0.07	0.41	0.46	0.47	0.59
4	504 PLACE VALUE	0.45	0.56	0.12	0.53	0.58	0.37	0.15	0.26	-0.02	0.43	0.46	0.54	0.54
5	505 NUMBER LINE	0.40	0.30	0.09	0.32	0.35	0.22	0.12	0.17	-0.08	0.25	0.29	0.32	0.38
6	506 APPLICATION	0.44	0.53	0.10	0.48	0.55	0.32	0.12	0.26	-0.01	0.37	0.42	0.47	0.55
7	507 RATIONALS	0.29	0.35	0.11	0.36	0.34	0.20	0.07	0.11	0.02	0.24	0.28	0.29	0.37
8	508 ORDR:PICSET:GR	0.42	0.43	0.08	0.44	0.48	0.22	0.07	0.22	-0.01	0.28	0.38	0.41	0.53
9	509 COUNTING:GROUP	0.13	0.08	0.05	0.16	0.12	0.12	-0.03	0.03	0.03	0.06	0.10	0.15	0.16
10	510 COMPUTE:ADD	0.45	0.46	0.09	0.58	0.56	0.26	0.09	0.21	-0.05	0.31	0.43	0.48	0.54
11	511 COMPUTE:SUB	0.41	0.44	0.13	0.54	0.56	0.27	0.08	0.22	-0.06	0.30	0.44	0.50	0.55
12	512 COMPUTE:MULT	0.40	0.47	0.15	0.46	0.52	0.43	0.08	0.23	0.03	0.39	0.41	0.52	0.53
13	521 IDFY POLYGS	0.13	0.16	-0.03	0.09	0.14	0.06	0.10	0.11	-0.03	0.07	0.17	0.13	0.11
14	522 CRVD&OPEN FIGS	-0.04	0.03	-0.00	0.06	0.03	0.05	-0.07	-0.02	0.04	0.05	0.02	-0.02	0.02
15	523 IDFY TRIANGS	0.15	0.16	0.03	0.14	0.13	0.17	0.22	0.21	-0.15	0.18	0.12	0.19	0.20
16	524 CONGRUENCE	0.02	0.05	-0.04	0.05	-0.01	0.01	0.05	0.06	-0.01	0.08	0.02	0.02	0.02
17	525 SIMILARITY	0.10	0.08	0.10	0.03	0.06	0.18	-0.00	0.01	0.08	0.08	0.09	0.09	0.10
18	306 PLACE VALUE	0.45	0.55	0.15	0.52	0.52	0.35	0.16	0.31	-0.05	0.40	0.41	0.48	0.53
19	307 NUMBER CMPARSN	0.42	0.48	0.09	0.41	0.42	0.25	0.17	0.28	-0.10	0.35	0.40	0.42	0.49
20	308 NUMBER LINE	1.00	0.38	0.13	0.38	0.45	0.28	0.09	0.25	-0.01	0.33	0.38	0.43	0.49
21	309 APPLICATION		1.00	0.11	0.47	0.50	0.34	0.12	0.23	-0.02	0.45	0.36	0.40	0.47
22	310 RATIONALS			1.00	0.10	0.13	0.05	0.02	0.10	0.04	0.11	0.09	0.10	0.12
23	311 COMPUTE:ADD				1.00	0.63	0.32	0.09	0.20	-0.05	0.30	0.45	0.48	0.49
24	312 COMPUTE:SUB					1.00	0.36	0.04	0.21	0.00	0.34	0.51	0.56	0.52
25	313 COMPUTE:MULT						1.00	0.09	0.17	0.02	0.34	0.32	0.39	0.32
26	321 IDFY TRIANGS							1.00	0.43	-0.45	0.21	0.11	0.10	0.13
27	322 IDFY RECTS								1.00	-0.41	0.23	0.24	0.26	0.30
28	323 CURVED FIGURES									1.00	-0.04	-0.02	-0.02	-0.07
29	328 CMPREHEN:GROUP										1.00	0.30	0.35	0.36
30	329 CMPREHEN:INDIV											1.00	0.46	0.45
31	A209 #RT:SAT TOTAL												1.00	0.55
32	M324 IQ:KUHL-ANDER													1.00

(continued)

Table A4.1 (third page) -- B. WISC Scales

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	M305 VOCB:WISC SCA	1.00	0.58	0.41	0.39	0.81	0.38	0.37	0.38	0.41	0.12	0.35	0.34	0.24
2	M306 SIML:WISC SCA		1.00	0.30	0.37	0.77	0.38	0.40	0.39	0.41	0.09	0.34	0.34	0.30
3	M307 P.CM:WISC SCA			1.00	0.35	0.67	0.33	0.25	0.26	0.28	0.02	0.24	0.25	0.17
4	M308 BLKD:WISC SCA				1.00	0.70	0.41	0.32	0.44	0.35	0.14	0.39	0.39	0.31
5	M311 TOTL:WISC SCA					1.00	0.51	0.46	0.50	0.50	0.13	0.45	0.45	0.35
6	306 PLACE VALUE						1.00	0.48	0.42	0.54	0.15	0.51	0.51	0.35
7	307 NUMBER CMPARSN							1.00	0.40	0.47	0.09	0.39	0.40	0.25
8	308 NUMBER LINE								1.00	0.38	0.14	0.39	0.44	0.28
9	309 APPLICATION									1.00	0.13	0.48	0.49	0.34
10	310 RATIONALS										1.00	0.11	0.13	0.06
11	311 COMPUTE:ADD											1.00	0.63	0.32
12	312 COMPUTE:SUB												1.00	0.36
13	313 COMPUTE:MULT													1.00

		14	15	16	17	18	19	20
1	M305 VOCB:WISC SCA	0.09	0.20	0.01	0.26	0.29	0.33	0.39
2	M306 SIML:WISC SCA	0.13	0.25	-0.04	0.29	0.32	0.34	0.39
3	M307 P.CM:WISC SCA	0.07	0.15	0.02	0.23	0.22	0.19	0.35
4	M308 BLKD:WISC SCA	0.07	0.23	0.00	0.27	0.35	0.35	0.48
5	M311 TOTL:WISC SCA	0.13	0.28	-0.00	0.36	0.40	0.41	0.54
6	306 PLACE VALUE	0.14	0.30	-0.07	0.40	0.41	0.45	0.47
7	307 NUMBER CMPARSN	0.17	0.28	-0.11	0.34	0.38	0.41	0.46
8	308 NUMBER LINE	0.08	0.24	-0.02	0.32	0.37	0.42	0.44
9	309 APPLICATION	0.12	0.23	-0.04	0.44	0.36	0.40	0.43
10	310 RATIONALS	0.03	0.10	0.01	0.12	0.10	0.11	0.11
11	311 COMPUTE:ADD	0.08	0.20	-0.07	0.31	0.47	0.47	0.44
12	312 COMPUTE:SUB	0.03	0.21	-0.03	0.34	0.51	0.54	0.47
13	313 COMPUTE:MULT	0.07	0.16	0.02	0.33	0.33	0.39	0.30
14	321 IDFY TRIANGS	1.00	0.43	-0.45	0.19	0.08	0.10	0.12
15	322 IDFY RECTS		1.00	-0.41	0.21	0.22	0.28	0.26
16	323 CURVED FIGURES			1.00	-0.04	-0.04	-0.03	-0.06
17	328 CMPREHEN:GROUP				1.00	0.29	0.34	0.34
18	329 CMPREHEN:INDIV					1.00	0.44	0.39
19	A209 #RT:SAT TOTAL						1.00	0.52
20	M324 IQ:KUHL-ANDER							1.00

(continued)

Table A4.1 (fourth page) -- C. SAT Scales

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	A301 #RT:SAT WORD	1.00	0.85	0.94	0.71	0.71	0.74	0.53	0.46	0.39	0.40	0.44	0.11	0.45
2	A303 #RT:SAT PGPH		1.00	0.98	0.74	0.75	0.78	0.60	0.50	0.44	0.44	0.45	0.12	0.51
3	A305 #RT:SAT TOTAL			1.00	0.75	0.76	0.79	0.59	0.50	0.44	0.44	0.45	0.12	0.51
4	A201 #RT:SAT WORD				1.00	0.83	0.94	0.51	0.45	0.41	0.40	0.37	0.09	0.47
5	A205 #RT:SAT PGPH					1.00	0.96	0.52	0.45	0.39	0.40	0.41	0.12	0.46
6	A209 #RT:SAT TOTAL						1.00	0.54	0.47	0.41	0.42	0.41	0.12	0.49
7	M324 IQ:KUHL-ANDER							1.00	0.47	0.45	0.45	0.44	0.12	0.43
8	306 PLACE VALUE								1.00	0.49	0.44	0.55	0.16	0.52
9	307 NUMBER CMPARSN									1.00	0.41	0.48	0.09	0.38
10	308 NUMBER LINE										1.00	0.38	0.14	0.38
11	309 APPLICATION											1.00	0.13	0.47
12	310 RATIONALS												1.00	0.11
13	311 COMPUTE:ADD													1.00

		14	15	16	17	18	19	20
1	A301 #RT:SAT WORD	0.48	0.38	0.09	0.22	0.00	0.36	0.38
2	A303 #RT:SAT PGPH	0.54	0.36	0.09	0.26	-0.02	0.36	0.42
3	A305 #RT:SAT TOTAL	0.54	0.37	0.09	0.25	-0.01	0.37	0.42
4	A201 #RT:SAT WORD	0.51	0.36	0.11	0.30	-0.03	0.31	0.42
5	A205 #RT:SAT PGPH	0.53	0.37	0.11	0.28	-0.03	0.34	0.43
6	A209 #RT:SAT TOTAL	0.54	0.39	0.12	0.30	-0.03	0.34	0.44
7	M324 IQ:KUHL-ANDER	0.47	0.30	0.12	0.27	-0.05	0.34	0.38
8	306 PLACE VALUE	0.52	0.35	0.17	0.31	-0.07	0.40	0.41
9	307 NUMBER CMPARSN	0.42	0.25	0.18	0.29	-0.10	0.34	0.38
10	308 NUMBER LINE	0.43	0.27	0.11	0.25	-0.02	0.30	0.37
11	309 APPLICATION	0.50	0.34	0.13	0.24	-0.02	0.44	0.36
12	310 RATIONALS	0.14	0.06	0.03	0.10	0.01	0.12	0.10
13	311 COMPUTE:ADD	0.54	0.32	0.08	0.22	-0.05	0.29	0.45
14	312 COMPUTE:SUB	1.00	0.36	0.05	0.22	-0.03	0.33	0.51
15	313 COMPUTE:MULT		1.00	0.09	0.16	0.01	0.34	0.31
16	321 IDFY TRIANGS			1.00	0.42	-0.44	0.21	0.09
17	322 IDFY RECTS				1.00	-0.40	0.22	0.22
18	323 CURVED FIGURES					1.00	-0.05	-0.03
19	328 CMPREHEN:GROUP						1.00	0.27
20	329 CMPREHEN:INDIV							1.00

Table A4.2A

Means and Standard Deviations
of End-of-First-Grade Scales and WISC Scales
Original Students

Covariates	MN	SD
306	4.39	2.05
307	5.20	1.48
308	3.30	1.29
309	4.17	1.64
310	2.88	1.33
311	7.05	2.26
312	4.81	3.11
313	0.35	0.69
321	4.72	1.84
322	2.70	1.41
323	3.42	1.46
328	1.74	1.05
329	2.32	1.25
A209	40.36	16.21
M324	108.97	14.69
M201	7.53	1.50
M202	5.08	2.11
M203	4.04	1.78
M204	16.65	4.38
Dependent Variables: WISC Scales		
M305	11.09	3.35
M306	11.65	3.24
M307	11.20	2.74
M308	11.05	2.97
M311	44.00	9.12

N = 476

NOTE: Statistics obtained from stepwise regressions of the WISC scales using the end-of-first-grade scales as covariates.

Table A4.2B
Correlations of WISC Scales and End-of-First-Grade Scales (Including Raven Scales)
Original Sample

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	M305 VOCB:WISC SCA	1.00	0.56	0.41	0.35	0.80	0.35	0.33	0.35	0.38	0.19	0.32	0.29	0.26
2	M306 SIML:WISC SCA		1.00	0.27	0.38	0.77	0.39	0.39	0.39	0.38	0.12	0.34	0.35	0.33
3	M307 P.CM:WISC SCA			1.00	0.39	0.67	0.31	0.24	0.22	0.26	0.07	0.22	0.17	0.16
4	M308 BLKD:WISC SCA				1.00	0.71	0.47	0.30	0.44	0.36	0.16	0.41	0.38	0.33
5	M311 TOTL:WISC SCA					1.00	0.51	0.43	0.48	0.47	0.19	0.44	0.41	0.37
6	306 PLACE VALUE						1.00	0.46	0.43	0.55	0.16	0.53	0.51	0.39
7	307 NUMBER CMPARSN							1.00	0.38	0.45	0.11	0.36	0.38	0.26
8	308 NUMBER LINE								1.00	0.38	0.18	0.41	0.41	0.26
9	309 APPLICATION									1.00	0.11	0.51	0.50	0.37
10	310 RATIONALS										1.00	0.12	0.17	0.05
11	311 COMPUTE:ADD											1.00	0.62	0.37
12	312 COMPUTE:SUB												1.00	0.40
13	313 COMPUTE:MULT													1.00

		14	15	16	17	18
1	M305 VOCB:WISC SCA	0.06	0.14	0.08	0.26	0.27
2	M306 SIML:WISC SCA	0.13	0.25	-0.01	0.31	0.34
3	M307 P.CM:WISC SCA	0.07	0.14	0.04	0.18	0.20
4	M308 BLKD:WISC SCA	0.07	0.18	0.05	0.31	0.36
5	M311 TOTL:WISC SCA	0.11	0.24	0.05	0.36	0.40
6	306 PLACE VALUE	0.13	0.30	-0.08	0.38	0.42
7	307 NUMBER CMPARSN	0.15	0.27	-0.13	0.32	0.33
8	308 NUMBER LINE	0.12	0.23	-0.01	0.34	0.36
9	309 APPLICATION	0.12	0.21	-0.04	0.44	0.35
10	310 RATIONALS	0.05	0.10	0.03	0.14	0.14
11	311 COMPUTE:ADD	0.08	0.19	-0.06	0.33	0.44
12	312 COMPUTE:SUB	0.01	0.19	-0.02	0.35	0.48
13	313 COMPUTE:MULT	0.06	0.14	0.05	0.39	0.34
14	321 IDEV TRIANGS	1.00	0.46	-0.41	0.22	0.04
15	322 IDEV RECTS		1.00	-0.38	0.21	0.22
16	323 CURVED FIGURES			1.00	-0.04	-0.04
17	328 CMPREHEN:GROUP				1.00	0.32
18	329 CMPREHEN:INDIV					1.00

(continued)

Table A4.2B (second page)

		19	20	21	22	23	24
1	M305 VOCB:WISC SCA	0.35	0.39	0.24	0.36	0.40	0.42
2	M306 SIML:WISC SCA	0.38	0.38	0.21	0.32	0.38	0.38
3	M307 P.CM:WISC SCA	0.16	0.34	0.26	0.32	0.32	0.38
4	M308 BLKD:WISC SCA	0.36	0.52	0.41	0.46	0.49	0.56
5	M311 TOTL:WISC SCA	0.43	0.55	0.38	0.49	0.54	0.59
6	306 PLACE VALUE	0.46	0.49	0.31	0.36	0.35	0.42
7	307 NUMBER CMPARSN	0.41	0.44	0.25	0.31	0.30	0.35
8	308 NUMBER LINE	0.41	0.43	0.31	0.36	0.37	0.43
9	309 APPLICATION	0.46	0.45	0.29	0.38	0.38	0.43
10	310 RATIONALS	0.13	0.16	0.07	0.11	0.15	0.14
11	311 COMPUTE:ADD	0.49	0.45	0.29	0.29	0.29	0.36
12	312 COMPUTE:SUB	0.54	0.45	0.22	0.32	0.28	0.35
13	313 COMPUTE:MULT	0.42	0.30	0.20	0.24	0.22	0.27
14	321 IDFY TRIANGS	0.11	0.13	0.06	0.05	0.12	0.09
15	322 IDFY RECTS	0.29	0.26	0.16	0.19	0.20	0.23
16	323 CURVED FIGURES	0.00	-0.04	0.00	0.02	0.01	0.02
17	328 CMPREHEN:GROUP	0.37	0.33	0.18	0.28	0.22	0.29
18	329 CMPREHEN:INDIV	0.42	0.37	0.23	0.27	0.28	0.32
19	A209 #RT:SAT TOTAL	1.00	0.55	0.26	0.29	0.25	0.33
20	M324 IQ:KUHL-ANDER		1.00	0.35	0.44	0.37	0.48
21	M201 RAVEN SET-A			1.00	0.48	0.38	0.73
22	M202 RAVEN SET-AB				1.00	0.56	0.87
23	M203 RAVEN SET-B					1.00	0.81
24	M204 RAVEN TOTAL						1.00

Table A4.2C

Regression Equations for Prediction of WISC Scales
From End-of-First-Grade Scales (Including Raven)
Original Sample

DEPENDENT VARIABLE — M305 VOCB:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.5119
STD. ERROR OF EST. 2.8863

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 1.38333)				
309	APPLICATION	0.3922	0.1917	0.09436	17.2736
310	RATIONALS	0.2869	0.1141	0.10108	8.0568
M324	IQ:KUHL-ANDER	0.0387	0.1697	0.01085	12.6890
M204	RAVEN TOTAL	0.1822	0.2386	0.03604	25.5687

DEPENDENT VARIABLE — M306 SIML:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.5428
STD. ERROR OF EST. 2.7310

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 5.90255)				
307	NUMBER CMPARSN	0.4554	0.2078	0.09444	23.2596
308	NUMBER LINE	0.4740	0.1894	0.11045	18.4194
313	COMPUTE:MULT	0.8601	0.1843	0.19134	20.2084
M203	RAVEN SET-B	0.3741	0.2062	0.07733	23.4021

DEPENDENT VARIABLE — M307 P.CM:WISC SCA

STEP NUMBER 3

MULTIPLE R 0.4303
STD. ERROP OF EST. 2.4855

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	COEFFICIENT STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 3.75254)				
306	PLACE VALUE	0.1775	0.1327	0.06577	7.2850
M324	IQ:KUHL-ANDER	0.0285	0.1524	0.00950	8.9734
M204	RAVEN TOTAL	0.1542	0.2461	0.03068	25.2713

(continued)

Table A4.2C
(second page)

DEPENDENT VARIABLE M308 BLKD:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.6593
STD. ERROR OF EST. 2.2396

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 0.33708)				
306	PLACE VALUE	0.2258	0.1562	0.06088	13.7520
308	NUMBER LINE	0.3156	0.1377	0.09437	11.1830
M324	IQ:KUHL-ANDER	0.0462	0.2289	0.00874	27.9917
M204	RAVEN TOTAL	0.2192	0.3238	0.02839	59.6385

DEPENDENT VARIABLE M311 TOTL:WISC SCA

STEP NUMBER 4

MULTIPLE R 0.7008
STD. ERROR OF EST. 6.5351

VARIABLES IN EQUATION

	VARIABLE	COEFFICIENT RAW	STDZ	STD. ERROR	F TO REMOVE
	(CONSTANT 9.76787)				
306	PLACE VALUE	0.8630	0.1941	0.17764	23.6005
308	NUMBER LINE	1.1080	0.1572	0.27537	16.1903
M324	IQ:KUHL-ANDER	0.1427	0.2298	0.02549	31.3424
M204	RAVEN TOTAL	0.6749	0.3241	0.08283	66.3849

Table A4.3A

Cell Means
of End-of-First-Grade Scales
Selected Sample Drawn from
Students Present at End of Second Grade

Scales	SMSG Low S.E. A1	SMSG Middle S.E. B1	State Low S.E. C1	State Middle S.E. D1
	MN	MN	MN	MN
Math Scales				
306	3.80	5.18	3.55	5.47
307	4.61	5.71	4.65	5.59
308	2.97	3.87	2.45	3.52
309	3.57	4.64	3.47	4.85
311	5.81	7.67	6.71	8.10
312	3.03	5.86	4.22	6.26
313	0.13	0.65	0.13	0.37
321	5.24	4.82	4.39	4.49
322	2.72	2.88	2.01	2.49
323	3.31	3.64	3.34	3.36
328	1.65	2.09	1.36	2.02
329	1.52	2.83	2.15	2.47
SAT Scale				
A209	34.09	42.64	34.95	46.62
Kuhlmann-Anderson				
M324	108.91	110.93	102.99	111.68

$552 \leq N \leq 571$

Table A4.3B

Analyses of Variance
Comparing Text and Socio-economic Effects
for End-of-First-Grade Scales
Selected Sample Drawn from
Students Present at End of Second Grade

Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
Math Scales							
306	98.96*	0.01	2.63	1.44	1.24	40.80*	58.18*
307	61.00*	0.11	0.36	0.04	0.37	41.62*	22.60*
308	89.57*	17.37*	0.71	15.53*	4.64*	43.14*	46.65*
309	83.92*	0.15	1.35	0.37	1.01	37.28*	46.66*
311	69.98*	11.82*	1.46	13.36*	2.08	53.17*	22.51*
312	90.59*	9.74*	2.40	13.52*	1.03	71.07*	27.89*
313	50.41*	6.78*	6.84*	0.00	11.42*	54.76*	8.84*
321	0.99	14.26*	2.80	18.47*	1.85	4.19*	0.20
322	6.50*	18.61*	1.65	19.49*	3.83	0.94	6.39*
323	2.05	0.99	1.55	0.04	2.09	4.22*	0.02
328	37.01*	3.81	1.44	6.13*	0.24	13.89*	23.24*
329	61.60*	1.60	22.87*	22.59*	5.20*	92.33*	4.14*
SAT Scale							
A209	57.88*	3.32	1.38	0.25	3.91*	23.09*	34.95*
Kuhlmann-Anderson							
M324	21.08*	4.92	8.18	14.58*	0.18	1.61	25.92*

$552 \leq N \leq 571$

TABLE A4.4
CORRELATIONS WITHIN CELLS
OF END-OF-SECOND-GRADE SCALES AND END-OF-FIRST-GRADE SCALES
SELECTED SAMPLE

MATHEMATICS SCALES (EXCLUDING RATIONALS, SCALE 507)

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.47	0.29	0.52	0.07	0.48	0.51	0.37	0.11	0.37	-0.14	0.28	0.43	0.49	0.17
307 NUMBER CMPARSN	2		1.00	0.14	0.38	-0.09	0.16	0.21	0.18	0.08	0.31	-0.06	0.16	0.22	0.34	0.28
308 NUMBER LINE	3			1.00	0.30	0.09	0.30	0.40	0.17	-0.12	0.02	0.12	0.20	0.18	0.29	0.19
309 APPLICATION	4				1.00	0.25	0.50	0.48	0.28	0.05	0.23	-0.04	0.40	0.32	0.43	0.27
310 RATIONALS	5					1.00	0.06	0.06	-0.04	-0.01	0.07	-0.07	0.20	0.20	0.08	-0.01
311 COMPUTE:ADD	6						1.00	0.55	0.21	0.07	0.17	-0.13	0.20	0.34	0.33	0.13
312 COMPUTE:SUBT	7							1.00	0.26	-0.07	0.25	-0.04	0.16	0.43	0.45	0.21
313 COMPURE:MULT	8								1.00	-0.00	0.09	0.10	0.34	0.30	0.33	0.09
321 IDFY TRIANGS	9									1.00	0.28	-0.30	0.08	-0.13	-0.02	-0.05
322 IDFY RECTS	10										1.00	-0.43	0.09	0.21	0.32	0.07
323 CURVD FIGS	11											1.00	0.07	-0.03	0.03	0.11
328 CMPREHEN:GROUP	12												1.00	0.19	0.23	0.19
329 CMPREHEN:INDIV	13													1.00	0.38	0.16
A209 #RT:SAT TOTAL	14														1.00	0.45
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
306 PLACE VALUE	1	0.56	0.35	0.48	0.57	0.24	0.43	0.41	-0.00	0.42	0.37	0.39	0.06	-0.11	-0.07	-0.00	0.09
307 NUMBER CMPARSN	2	0.38	0.30	0.31	0.20	0.26	0.21	0.25	0.10	0.22	0.25	0.24	0.08	-0.16	0.01	-0.01	-0.11
308 NUMBER LINE	3	0.23	0.39	0.40	0.28	0.24	0.26	0.23	0.03	0.44	0.36	0.28	0.02	-0.01	-0.05	0.03	0.15
309 APPLICATION	4	0.49	0.43	0.50	0.41	0.25	0.41	0.29	0.07	0.27	0.32	0.35	0.12	-0.21	-0.07	-0.02	0.04
310 RATIONALS	5	0.15	0.06	0.23	0.23	-0.01	-0.02	0.05	0.25	0.01	0.10	0.15	-0.01	-0.15	-0.14	-0.05	0.14
311 COMPUTE:ADD	6	0.40	0.37	0.48	0.43	0.21	0.41	0.35	0.05	0.41	0.37	0.28	0.10	0.04	-0.00	0.11	-0.03
312 COMPUTE:SUBT	7	0.49	0.45	0.50	0.53	0.31	0.50	0.45	0.10	0.48	0.53	0.45	0.14	-0.08	-0.01	0.09	-0.06
313 COMPURE:MULT	8	0.26	0.34	0.24	0.31	0.16	0.30	0.14	0.11	0.24	0.21	0.20	0.07	-0.04	-0.04	0.02	0.09
321 IDFY TRIANGS	9	0.11	-0.02	0.02	0.10	-0.03	-0.01	0.01	-0.07	-0.04	-0.12	-0.07	0.02	0.02	0.20	0.12	0.02
322 IDFY RECTS	10	0.38	0.19	0.31	0.28	0.08	0.27	0.29	0.05	0.20	0.14	0.15	0.07	-0.14	0.16	-0.04	0.01
323 CURVD FIGS	11	-0.15	0.03	-0.12	-0.21	-0.12	-0.05	0.04	0.00	-0.04	-0.07	0.07	0.18	-0.01	-0.17	-0.07	-0.02
328 CMPREHEN:GROUP	12	0.29	0.25	0.34	0.23	0.08	0.21	0.22	0.07	0.20	0.13	0.18	0.06	0.02	0.09	0.12	0.08
329 CMPREHEN:INDIV	13	0.40	0.36	0.41	0.38	0.19	0.22	0.29	0.12	0.33	0.34	0.35	0.09	-0.05	0.03	0.01	0.04
A209 #RT:SAT TOTAL	14	0.53	0.49	0.49	0.45	0.29	0.44	0.34	0.09	0.28	0.28	0.44	0.24	-0.32	-0.04	-0.10	0.04
M324 KULH AND:IQ	15	0.25	0.33	0.26	0.13	0.29	0.32	0.08	0.12	0.09	0.09	0.34	0.03	-0.02	-0.02	0.00	-0.05
501 VOCABULARY	16	1.00	0.49	0.63	0.55	0.28	0.53	0.45	0.11	0.46	0.42	0.37	0.11	-0.13	0.02	0.07	0.12
502 COMPREHENSION	17		1.00	0.49	0.43	0.27	0.47	0.37	0.08	0.35	0.33	0.31	0.08	-0.14	-0.15	-0.04	0.13
503 NUMBER CMPARSN	18			1.00	0.53	0.24	0.55	0.46	0.22	0.53	0.46	0.49	0.11	-0.13	-0.05	0.04	-0.09
504 PLACE VALUE	19				1.00	0.24	0.50	0.29	0.08	0.44	0.44	0.42	0.10	-0.06	-0.02	0.02	0.08
505 NUMBER LINE	20					1.00	0.27	0.21	0.05	0.21	0.35	0.17	-0.02	-0.10	0.03	0.12	0.04
506 APPLICATION	21						1.00	0.39	0.12	0.40	0.44	0.27	0.04	-0.13	-0.05	0.02	-0.09
508 CRDR:PICSET:GP	22							1.00	-0.01	0.41	0.36	0.34	0.13	-0.13	-0.07	-0.00	0.03
509 COUNTING	23								1.00	0.21	0.25	0.14	-0.03	0.10	-0.05	0.04	-0.12
510 COMPUTE:ADD	24									1.00	0.77	0.53	0.13	0.19	0.07	0.26	0.11
511 COMPUTE:SUBT	25										1.00	0.46	0.09	0.09	0.04	0.32	0.06
512 COMPUTE:MULT	26											1.00	0.22	0.03	-0.03	0.01	0.06
521 IDFY POLYGS	27												1.00	-0.24	0.15	0.02	0.12
522 CRVDGOPEN FIGS	28													1.00	0.24	0.36	0.31
523 IDFY TRIANGS	29														1.00	0.28	-0.09
524 CONGRUENCE	30															1.00	-0.13
525 SIMILARITY	31																1.00

N = 121 FOR CELL A1

(CONTINUED)

TABLE A4.4
(SECOND PAGE)

RATIONALS, SCALE 507

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.57	0.36	0.54	-0.06	0.45	0.49	0.41	0.11	0.39	-0.04	0.26	0.39	0.56	0.36	0.24
307 NUMBER CMPARSN	2		1.00	0.26	0.46	-0.07	0.31	0.30	0.20	0.02	0.30	-0.04	0.19	0.39	0.42	0.44	0.27
308 NUMBER LINE	3			1.00	0.34	-0.01	0.27	0.49	0.19	-0.16	0.08	0.15	0.25	0.21	0.38	0.41	0.23
309 APPLICATION	4				1.00	0.19	0.49	0.49	0.33	-0.09	0.14	0.07	0.42	0.34	0.44	0.44	0.31
310 RATIONALS	5					1.00	-0.04	0.0	-0.05	-0.05	0.02	0.05	0.19	0.18	0.05	0.07	0.14
311 COMPUTE:ADD	6						1.00	0.50	0.26	-0.02	0.09	-0.06	0.19	0.30	0.41	0.35	0.32
312 COMPUTE:SUBT	7							1.00	0.31	-0.15	0.22	0.05	0.16	0.42	0.56	0.47	0.24
313 COMPURE:MULT	8								1.00	-0.00	0.08	0.09	0.34	0.35	0.45	0.20	0.10
321 IDFY TRIANGS	9									1.00	0.19	-0.26	0.08	-0.15	-0.12	-0.13	0.07
322 IDFY RECTS	10										1.00	-0.44	0.12	0.28	0.34	0.25	-0.00
323 CURVD FIGS	11											1.00	0.08	0.03	0.09	0.04	0.07
328 CMPREHEN:GROUP	12												1.00	0.27	0.29	0.23	0.12
329 CMPREHEN:INDIV	13													1.00	0.53	0.45	0.25
A209 #RT:SAT TOTAL	14														1.00	0.50	0.27
M324 KULH AND:IQ	15															1.00	0.32
507 RATIONALS	16																1.00

N = 91 FOR CELL A1

(CONTINUED)

TABLE A4.4
(THIRD PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.40	0.29	0.55	0.08	0.42	0.37	0.30	0.21	0.23	0.01	0.35	0.36	0.43	0.45
307 NUMBER CMPARSN	2		1.00	0.28	0.43	0.01	0.29	0.32	0.07	0.24	0.20	-0.14	0.26	0.31	0.30	0.41
308 NUMBER LINE	3			1.00	0.23	0.09	0.45	0.31	0.11	0.11	0.10	0.07	0.24	0.26	0.37	0.38
309 APPLICATION	4				1.00	0.09	0.52	0.53	0.35	0.21	0.17	-0.04	0.39	0.36	0.41	0.42
310 RATIONALS	5					1.00	0.17	0.13	0.12	-0.13	0.00	0.08	0.11	-0.01	0.17	0.12
311 COMPUTE:ADD	6						1.00	0.62	0.39	0.16	0.10	0.09	0.33	0.52	0.50	0.45
312 COMPUTE:SUBT	7							1.00	0.40	0.07	0.05	0.17	0.40	0.49	0.51	0.41
313 COMPURE:MULT	8								1.00	0.02	0.02	0.11	0.34	0.43	0.43	0.29
321 IDFY TRIANGS	9									1.00	0.49	-0.40	0.27	0.06	0.05	0.15
322 IDFY RECTS	10										1.00	-0.28	0.16	0.08	0.15	0.25
323 CURVD FIGS	11											1.00	-0.03	0.11	0.15	-0.09
328 CMPREHEN:GROUP	12												1.00	0.32	0.41	0.42
329 CMPREHEN:INDIV	13													1.00	0.44	0.37
A209 #RT:SAT TOTAL	14														1.00	0.47
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
306 PLACE VALUE	1	0.49	0.33	0.43	0.57	0.29	0.37	0.32	0.30	0.19	0.44	0.38	0.46	0.06	0.24	0.13	0.20	0.16
307 NUMBER CMPARSN	2	0.37	0.37	0.44	0.40	0.44	0.24	0.22	0.27	0.13	0.43	0.32	0.33	0.16	-0.04	0.10	0.09	0.02
308 NUMBER LINE	3	0.35	0.32	0.46	0.42	0.26	0.42	0.20	0.30	0.13	0.45	0.38	0.39	0.00	0.04	-0.01	0.02	0.10
309 APPLICATION	4	0.52	0.46	0.46	0.67	0.29	0.43	0.23	0.33	0.08	0.45	0.37	0.54	0.24	0.12	0.18	0.18	0.12
310 RATIONALS	5	0.13	0.09	0.05	0.08	0.07	0.12	0.19	0.08	0.07	0.14	0.22	0.20	-0.29	-0.06	0.04	-0.08	0.13
311 COMPUTE:ADD	6	0.44	0.53	0.54	0.54	0.31	0.53	0.19	0.38	0.23	0.64	0.55	0.56	0.10	0.15	0.03	0.04	0.11
312 COMPUTE:SUBT	7	0.44	0.42	0.45	0.64	0.39	0.45	0.23	0.32	0.14	0.44	0.41	0.51	0.22	0.10	0.14	0.03	0.11
313 COMPURE:MULT	8	0.31	0.36	0.23	0.40	0.16	0.29	0.09	0.01	0.17	0.27	0.29	0.40	0.02	0.14	0.19	0.05	0.22
321 IDFY TRIANGS	9	0.20	0.19	0.26	0.21	0.11	0.17	0.16	0.04	-0.02	0.16	0.13	0.12	0.10	0.09	0.16	0.15	-0.10
322 IDFY RECTS	10	0.14	0.14	0.19	0.18	0.07	0.02	0.12	0.02	-0.08	0.12	0.17	0.16	0.02	0.08	0.10	0.18	-0.08
323 CURVD FIGS	11	0.01	-0.05	-0.05	0.11	-0.02	0.11	0.08	0.09	0.10	-0.02	-0.02	0.05	0.03	0.07	0.06	-0.01	-0.03
328 CMPREHEN:GROUP	12	0.46	0.23	0.43	0.45	0.26	0.38	0.16	0.23	0.05	0.29	0.30	0.39	-0.04	0.21	0.22	0.05	0.09
329 CMPREHEN:INDIV	13	0.44	0.45	0.33	0.47	0.38	0.42	0.18	0.20	0.11	0.35	0.41	0.42	0.25	0.15	0.01	0.06	0.17
A209 #RT:SAT TOTAL	14	0.50	0.39	0.42	0.51	0.36	0.39	0.09	0.31	0.17	0.42	0.55	0.56	0.03	0.11	0.12	-0.02	0.23
M324 KULH AND:IQ	15	0.50	0.46	0.55	0.49	0.40	0.42	0.14	0.39	0.01	0.50	0.54	0.52	0.00	0.16	0.01	-0.04	0.21
501 VOCABULARY	16	1.00	0.49	0.55	0.63	0.45	0.53	0.25	0.51	0.16	0.38	0.48	0.44	0.07	0.15	0.15	0.03	0.14
502 COMPREHENSION	17		1.00	0.46	0.49	0.37	0.45	0.13	0.39	0.13	0.44	0.40	0.40	0.09	0.07	0.16	-0.00	0.17
503 NUMBER CMPARSN	18			1.00	0.47	0.39	0.37	0.20	0.43	0.16	0.48	0.52	0.47	0.14	0.20	0.10	0.06	0.11
504 PLACE VALUE	19				1.00	0.42	0.58	0.32	0.39	0.13	0.59	0.57	0.59	0.20	0.16	0.20	0.10	0.08
505 NUMBER LINE	20					1.00	0.34	0.27	0.39	0.02	0.34	0.39	0.36	0.20	0.04	0.10	-0.03	0.12
506 APPLICATION	21						1.00	0.27	0.35	0.10	0.52	0.48	0.41	0.17	0.06	0.15	0.10	0.04
507 RATIONALS	22							1.00	0.13	0.10	0.14	0.26	0.26	0.10	0.16	0.16	0.08	0.12
508 ORDR:PICSET:GP	23								1.00	0.08	0.40	0.39	0.27	0.03	0.04	0.05	0.06	0.06
509 COUNTING	24									1.00	0.21	0.21	0.08	0.17	0.07	-0.06	0.06	0.02
510 COMPUTE:ADD	25										1.00	0.62	0.59	0.05	0.10	0.09	-0.01	0.14
511 COMPUTE:SUBT	26											1.00	0.49	0.08	0.13	0.04	-0.07	0.19
512 COMPUTE:MULT	27												1.00	0.06	0.15	0.14	0.03	0.20
521 IDFY POLYGS	28													1.00	-0.06	0.06	0.21	-0.09
522 CRVD&OPEN FIGS	29														1.00	-0.04	0.05	0.18
523 IDFY TRIANGS	30															1.00	0.17	-0.16
524 CONGRUENCE	31																1.00	-0.27
525 SIMILARITY	32																	1.00

N = 143 FOR CELL B1

(CONTINUED)

TABLE A4.4
(FOURTH PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.41	0.35	0.46	0.13	0.45	0.32	0.15	0.15	0.30	-0.16	0.23	0.35	0.40	0.45
307 NUMBER CMPARSN	2		1.00	0.41	0.39	0.14	0.32	0.35	0.12	0.17	0.26	-0.28	0.31	0.41	0.42	0.44
308 NUMBER LINE	3			1.00	0.23	0.03	0.31	0.37	0.17	0.11	0.16	-0.20	0.15	0.44	0.49	0.38
309 APPLICATION	4				1.00	-0.03	0.35	0.38	0.29	0.15	0.17	-0.09	0.43	0.26	0.35	0.41
310 RATIONALS	5					1.00	0.10	0.05	-0.07	-0.08	0.01	-0.00	-0.08	-0.01	0.04	0.09
311 COMPUTE:ADD	6						1.00	0.55	0.19	0.06	0.15	-0.12	0.17	0.40	0.52	0.49
312 COMPUTE:SUBT	7							1.00	0.20	0.00	0.15	-0.12	0.18	0.40	0.57	0.51
313 COMPURE:MULT	8								1.00	0.15	0.10	-0.16	0.23	0.15	0.27	0.26
321 IDFY TRIANGS	9									1.00	0.43	-0.50	0.19	0.18	0.10	0.11
322 IDFY RECTS	10										1.00	-0.62	0.15	0.25	0.32	0.23
323 CURVD FIGS	11											1.00	-0.11	-0.14	-0.20	-0.17
328 CMPREHEN:GROUP	12												1.00	0.27	0.28	0.25
329 CMPREHEN:INDIV	13													1.00	0.45	0.43
A209 #RT:SAT TOTAL	14														1.00	0.55
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
306 PLACE VALUE	1	0.36	0.40	0.47	0.47	0.25	0.36	0.26	0.38	0.15	0.50	0.41	0.35	-0.06	-0.06	0.08	0.11	-0.29
307 NUMBER CMPARSN	2	0.48	0.38	0.47	0.32	0.23	0.38	0.32	0.37	0.17	0.47	0.36	0.30	-0.02	-0.03	0.03	-0.02	-0.12
308 NUMBER LINE	3	0.33	0.29	0.43	0.32	0.35	0.26	0.24	0.35	0.21	0.38	0.34	0.17	-0.15	-0.07	0.03	-0.07	-0.06
309 APPLICATION	4	0.41	0.31	0.38	0.45	0.13	0.34	0.33	0.40	-0.02	0.44	0.31	0.27	0.04	0.03	0.10	-0.02	-0.09
310 RATIONALS	5	0.03	0.05	0.03	-0.03	0.14	0.07	-0.04	-0.02	-0.03	0.06	0.09	0.01	-0.06	0.02	-0.06	0.00	-0.05
311 COMPUTE:ADD	6	0.43	0.43	0.41	0.47	0.33	0.31	0.41	0.41	0.19	0.52	0.47	0.38	-0.12	0.09	0.09	-0.02	-0.13
312 COMPUTE:SUBT	7	0.49	0.43	0.51	0.47	0.23	0.40	0.35	0.44	0.05	0.52	0.43	0.38	-0.01	0.00	0.04	-0.14	-0.06
313 COMPURE:MULT	8	0.21	0.15	0.16	0.22	0.06	0.09	0.19	0.20	0.03	0.16	0.16	0.24	-0.07	0.00	0.12	-0.04	-0.04
321 IDFY TRIANGS	9	0.16	0.08	0.13	0.14	0.11	0.13	0.04	0.12	0.04	0.07	0.09	-0.03	0.13	-0.10	0.33	0.04	-0.11
322 IDFY RECTS	10	0.30	0.12	0.27	0.26	0.09	0.24	0.09	0.21	0.11	0.22	0.23	0.06	0.05	-0.14	0.28	0.12	-0.26
323 CURVD FIGS	11	-0.28	-0.09	-0.25	-0.15	-0.12	-0.17	-0.03	-0.13	-0.12	-0.17	-0.19	0.04	-0.13	0.09	-0.27	0.02	0.18
328 CMPREHEN:GROUP	12	0.18	0.33	0.26	0.29	0.03	0.26	0.19	0.12	0.07	0.26	0.14	0.26	0.04	0.12	0.17	0.11	-0.20
329 CMPREHEN:INDIV	13	0.38	0.39	0.46	0.39	0.19	0.37	0.33	0.37	0.15	0.46	0.39	0.28	-0.10	0.05	-0.02	-0.03	-0.08
A209 #RT:SAT TOTAL	14	0.49	0.49	0.45	0.54	0.23	0.34	0.37	0.46	0.05	0.47	0.43	0.35	0.05	-0.09	0.13	-0.03	-0.18
M324 KULH AND:IQ	15	0.60	0.51	0.55	0.61	0.35	0.51	0.39	0.52	0.20	0.58	0.52	0.49	-0.08	-0.02	0.12	-0.04	-0.13
501 VOCABULARY	16	1.00	0.46	0.66	0.56	0.31	0.56	0.35	0.54	0.26	0.55	0.47	0.33	0.05	-0.06	0.12	0.00	-0.20
502 COMPREHENSION	17		1.00	0.45	0.46	0.21	0.47	0.38	0.43	0.18	0.48	0.52	0.41	-0.02	-0.10	0.15	0.08	-0.30
503 NUMBER CMPARSN	18			1.00	0.55	0.29	0.51	0.34	0.46	0.19	0.50	0.42	0.30	-0.01	-0.04	0.07	-0.06	-0.19
504 PLACE VALUE	19				1.00	0.31	0.51	0.40	0.46	0.06	0.54	0.50	0.50	0.06	-0.08	0.18	-0.05	-0.25
505 NUMBER LINE	20					1.00	0.28	0.30	0.33	0.22	0.25	0.20	0.24	-0.06	-0.11	0.04	0.03	-0.06
506 APPLICATION	21						1.00	0.34	0.50	0.21	0.54	0.52	0.41	0.08	-0.00	0.17	0.0	-0.22
507 RATIONALS	22							1.00	0.37	0.16	0.34	0.32	0.33	-0.03	-0.11	0.13	0.01	-0.18
508 GRDR:PICSET:GP	23								1.00	0.15	0.47	0.46	0.35	0.03	-0.16	0.02	-0.01	-0.13
509 COUNTING	24									1.00	0.18	0.13	0.20	-0.21	0.04	-0.01	-0.06	-0.07
510 COMPUTE:ADD	25										1.00	0.66	0.51	-0.04	0.03	0.13	-0.06	-0.14
511 COMPURE:SUBT	26											1.00	0.54	0.07	-0.03	0.16	0.00	-0.15
512 COMPUTE:MULT	27												1.00	-0.05	0.03	0.07	-0.03	-0.09
521 IDFY POLYGS	28													1.00	-0.30	0.07	0.03	-0.05
522 CRVD&OPEN FIGS	29														1.00	-0.17	0.00	0.00
523 IDFY TRIANGS	30															1.00	0.10	-0.22
524 CONGRUENCE	31																1.00	-0.39
525 SIMILARITY	32																	1.00

N = 156 FOR CELL C1

(CONTINUED)

TABLE A4.4
(FIFTH PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.55	0.46	0.54	0.15	0.47	0.50	0.38	0.02	0.10	-0.06	0.47	0.26	0.39	0.52
307 NUMBER CMPARSN	2		1.00	0.53	0.57	0.15	0.48	0.54	0.20	0.15	0.16	-0.11	0.46	0.42	0.43	0.52
308 NUMBER LINE	3			1.00	0.49	0.23	0.38	0.46	0.26	0.03	0.17	0.09	0.46	0.22	0.40	0.40
309 APPLICATION	4				1.00	0.14	0.44	0.54	0.31	0.13	0.17	-0.07	0.55	0.26	0.38	0.44
310 RATIONALS	5					1.00	0.12	0.32	0.12	0.19	0.21	-0.05	0.15	0.10	0.04	0.33
311 COMPUTE:ADD	6						1.00	0.66	0.32	0.05	0.16	-0.08	0.29	0.37	0.43	0.55
312 COMPUTE:SUBT	7							1.00	0.35	0.15	0.19	-0.01	0.38	0.39	0.43	0.66
313 COMPURE:MULT	8								1.00	0.03	0.08	0.14	0.44	0.03	0.29	0.31
321 IDFY TRIANGS	9									1.00	0.52	-0.56	0.31	0.03	0.23	0.20
322 IDFY RECTS	10										1.00	-0.43	0.23	0.07	0.24	0.21
323 CURVD FIGS	11											1.00	-0.16	0.06	-0.13	-0.12
328 CMPREHEN:GROUP	12												1.00	0.08	0.41	0.35
329 CMPREHEN:INDIV	13													1.00	0.27	0.37
A209 #RT:SAT TOTAL	14														1.00	0.53
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
306 PLACE VALUE	1	0.57	0.58	0.54	0.63	0.29	0.54	0.34	0.46	0.17	0.49	0.55	0.54	-0.12	-0.09	0.26	0.01	0.11
307 NUMBER CMPARSN	2	0.54	0.47	0.53	0.57	0.42	0.66	0.35	0.45	0.21	0.37	0.49	0.44	-0.07	-0.16	0.25	0.01	-0.07
308 NUMBER LINE	3	0.47	0.42	0.40	0.30	0.36	0.62	0.34	0.40	0.10	0.36	0.38	0.42	-0.17	-0.10	0.13	0.06	-0.06
309 APPLICATION	4	0.62	0.54	0.53	0.55	0.22	0.64	0.31	0.37	0.05	0.44	0.51	0.43	-0.10	-0.24	0.26	0.05	0.01
310 RATIONALS	5	0.16	0.29	0.10	0.17	0.17	0.19	0.26	0.11	0.17	0.14	0.14	0.26	-0.03	0.06	0.25	-0.05	0.09
311 COMPUTE:ADD	6	0.46	0.32	0.53	0.49	0.28	0.54	0.33	0.29	0.15	0.53	0.61	0.46	0.05	-0.01	0.12	0.20	-0.03
312 COMPUTE:SUBT	7	0.50	0.48	0.50	0.51	0.26	0.65	0.32	0.39	0.14	0.51	0.61	0.55	0.05	-0.05	0.31	0.02	-0.03
313 COMPURE:MULT	8	0.33	0.30	0.22	0.21	0.10	0.33	0.40	0.17	0.14	0.23	0.33	0.39	-0.03	0.22	0.23	0.10	0.03
321 IDFY TRIANGS	9	0.09	0.22	0.08	0.11	0.08	0.11	0.05	-0.01	-0.07	0.03	0.18	0.26	0.08	-0.15	0.21	0.12	-0.10
322 IDFY RECTS	10	0.11	0.12	0.21	0.08	0.14	0.17	0.16	0.14	-0.07	0.14	0.17	0.32	0.06	-0.14	0.15	0.11	-0.10
323 CURVD FIGS	11	0.01	0.00	-0.13	-0.09	-0.24	0.06	0.07	0.03	0.17	-0.04	-0.16	-0.15	-0.01	0.09	-0.22	0.02	0.05
328 CMPREHEN:GROUP	12	0.43	0.44	0.50	0.39	0.22	0.42	0.22	0.31	0.12	0.36	0.35	0.48	0.06	-0.09	0.21	0.03	0.15
329 CMPREHEN:INDIV	13	0.42	0.23	0.27	0.29	-0.06	0.19	0.16	0.12	0.19	0.12	0.19	0.22	0.21	-0.18	0.21	0.05	-0.06
A209 #RT:SAT TOTAL	14	0.39	0.44	0.41	0.44	0.33	0.46	0.33	0.23	0.12	0.43	0.46	0.62	0.05	-0.04	0.23	0.04	-0.16
M324 KULH AND:IQ	15	0.51	0.48	0.50	0.45	0.30	0.50	0.37	0.43	0.22	0.38	0.49	0.58	-0.02	-0.11	0.31	0.09	0.04
501 VOCABULARY	16	1.00	0.44	0.55	0.52	0.25	0.58	0.45	0.40	0.09	0.45	0.52	0.44	-0.11	-0.10	0.32	0.00	0.11
502 COMPREHENSION	17		1.00	0.41	0.54	0.31	0.44	0.25	0.49	0.10	0.38	0.43	0.48	-0.02	-0.06	0.18	-0.10	0.11
503 NUMBER CMPARSN	18			1.00	0.47	0.33	0.53	0.39	0.39	0.16	0.61	0.47	0.51	-0.08	-0.06	0.27	0.04	0.02
504 PLACE VALUE	19				1.00	0.36	0.52	0.18	0.34	0.17	0.46	0.51	0.43	0.01	-0.03	0.11	-0.06	0.12
505 NUMBER LINE	20					1.00	0.35	0.20	0.27	0.06	0.34	0.25	0.14	-0.01	-0.01	0.25	0.06	-0.18
506 APPLICATION	21						1.00	0.35	0.45	0.15	0.56	0.61	0.57	-0.11	-0.08	0.18	0.05	-0.05
507 RATIONALS	22							1.00	0.25	0.07	0.48	0.39	0.45	-0.07	0.09	0.26	-0.12	0.08
508 ORDR:PICSET:GP	23								1.00	0.11	0.29	0.43	0.37	-0.11	-0.04	0.24	-0.11	0.26
509 COUNTING	24									1.00	0.17	0.28	0.15	-0.04	-0.02	-0.12	0.15	0.10
510 COMPUTE:ADD	25										1.00	0.65	0.43	-0.14	-0.04	0.16	-0.01	-0.01
511 COMPUTE:SUBT	26											1.00	0.56	-0.14	-0.03	0.14	0.06	0.12
512 COMPUTE:MULT	27												1.00	0.03	-0.04	0.18	-0.05	0.13
521 IDFY POLYGS	28													1.00	0.01	0.13	0.07	-0.06
522 CRVD&OPEN FIGS	29														1.00	0.03	-0.10	0.05
523 IDFY TRIANGS	30															1.00	-0.03	-0.14
524 CONGRUENCE	31																1.00	-0.45
525 SIMILARITY	32																	1.00

N = 78 FOR CELL D1

(CONTINUED)

TABLE A4.4
(SIXTH PAGE)

WISC SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.51	0.33	0.57	0.05	0.52	0.55	0.46	0.10	0.40	-0.06	0.31	0.45	0.49	0.16
307 NUMBER CMPARSN	2		1.00	0.09	0.43	-0.08	0.17	0.17	0.23	0.08	0.33	-0.11	0.10	0.09	0.26	0.20
308 NUMBER LINE	3			1.00	0.33	0.08	0.32	0.40	0.19	-0.11	0.07	0.14	0.26	0.15	0.32	0.18
309 APPLICATION	4				1.00	0.19	0.47	0.49	0.37	0.03	0.25	-0.05	0.43	0.35	0.48	0.31
310 RATIONALS	5					1.00	-0.07	0.08	-0.00	0.03	0.06	-0.05	0.23	0.27	0.12	-0.04
311 COMPUTE:ADD	6						1.00	0.54	0.32	0.11	0.15	-0.11	0.28	0.34	0.39	0.21
312 COMPUTE:SUBT	7							1.00	0.30	-0.11	0.27	-0.02	0.21	0.33	0.48	0.27
313 COMPURE:MULT	8								1.00	-0.04	0.16	0.07	0.34	0.35	0.40	0.09
321 IDFY TRIANGS	9									1.00	0.33	-0.29	0.10	-0.20	-0.01	-0.02
322 IDFY RECTS	10										1.00	-0.44	0.10	0.19	0.36	0.12
323 CURVD FIGS	11											1.00	0.05	-0.01	0.04	0.12
328 CMPREHEN:GROUP	12												1.00	0.27	0.22	0.11
329 CMPREHEN:INDIV	13													1.00	0.37	0.15
A209 ART:SAT TOTAL	14														1.00	0.51
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24
306 PLACE VALUE	1	0.08	0.14	0.12	0.16	0.41	0.22	0.31	0.28	0.43
307 NUMBER CMPARSN	2	0.14	0.21	0.15	0.23	0.34	0.31	0.34	0.14	0.41
308 NUMBER LINE	3	0.06	0.17	0.22	0.21	0.38	0.22	0.10	0.27	0.35
309 APPLICATION	4	0.16	0.22	0.36	0.34	0.34	0.15	0.19	0.17	0.31
310 RATIONALS	5	0.15	0.19	0.11	0.20	0.14	0.03	-0.09	-0.01	0.03
311 COMPUTE:ADD	6	0.14	0.21	0.18	0.24	0.39	0.19	0.18	0.24	0.36
312 COMPUTE:SUBT	7	0.15	0.19	0.24	0.26	0.31	0.20	0.16	0.32	0.35
313 COMPURE:MULT	8	0.04	-0.10	0.11	0.01	-0.00	0.04	0.02	0.16	0.07
321 IDFY TRIANGS	9	-0.16	-0.03	-0.07	-0.11	0.15	-0.03	-0.03	-0.04	0.02
322 IDFY RECTS	10	-0.00	0.12	0.26	0.18	0.25	0.23	0.08	0.08	0.24
323 CURVD FIGS	11	0.05	0.06	-0.07	0.02	0.04	0.07	0.16	0.08	0.12
328 CMPREHEN:GROUP	12	0.24	0.21	-0.03	0.19	0.15	0.00	0.07	0.10	0.11
329 CMPREHEN:INDIV	13	0.14	0.07	0.08	0.13	0.17	0.14	0.16	0.21	0.25
A209 ART:SAT TOTAL	14	0.18	0.11	0.21	0.22	0.45	0.27	0.29	0.26	0.46
M324 KULH AND:IQ	15	0.08	0.18	0.22	0.22	0.33	0.19	0.33	0.17	0.37
M201 SET A:RAVEN	16	1.00	0.38	0.11	0.64	0.05	0.04	0.12	-0.01	0.07
M202 SET AB:RAVEN	17		1.00	0.39	0.85	0.26	0.15	0.26	0.17	0.30
M203 SET B:RAVEN	18			1.00	0.68	0.27	0.19	0.14	0.25	0.30
M204 TOTAL:RAVEN	19				1.00	0.28	0.18	0.25	0.20	0.32
M305 VOCB:WISC SCA	20					1.00	0.49	0.32	0.34	0.78
M306 SIML:WISC SCA	21						1.00	0.15	0.27	0.72
M307 P CN:WISC SCA	22							1.00	0.32	0.63
M308 BLKD:WISC SCA	23								1.00	0.66
M311 TOTL:WISC SCA	24									1.00

N = 97 FOR CELL A1

(CONTINUED)

TABLE A4.4
(SEVENTH PAGE)

WISC SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.32	0.30	0.52	0.08	0.44	0.41	0.35	0.22	0.20	-0.08	0.27	0.34	0.43	0.50
307 NUMBER CMPARSN	2		1.00	0.22	0.30	0.00	0.27	0.30	0.13	0.23	0.17	-0.14	0.22	0.24	0.27	0.33
308 NUMBER LINE	3			1.00	0.19	0.11	0.41	0.27	0.07	0.10	-0.01	0.06	0.21	0.09	0.27	0.36
309 APPLICATION	4				1.00	0.09	0.55	0.54	0.40	0.31	0.13	-0.07	0.30	0.27	0.42	0.34
310 RATIONALS	5					1.00	0.14	0.16	0.05	-0.13	-0.05	0.09	0.06	-0.05	0.16	0.16
311 COMPUTE:ADD	6						1.00	0.59	0.37	0.11	-0.00	0.11	0.21	0.39	0.48	0.43
312 COMPUTE:SUBT	7							1.00	0.44	0.11	-0.02	0.11	0.38	0.42	0.54	0.37
313 COMPURE:MULT	8								1.00	0.10	0.06	0.11	0.29	0.40	0.40	0.32
321 IDFY TRIANGS	9									1.00	0.49	-0.37	0.28	-0.03	0.06	0.13
322 IDFY RECTS	10										1.00	-0.22	0.12	0.07	0.08	0.21
323 CURVD FIGS	11											1.00	-0.03	0.04	0.23	-0.02
328 CMPREHEN:GROUP	12												1.00	0.25	0.31	0.37
329 CMPREHEN:INDIV	13													1.00	0.36	0.29
A209 ART:SAT TOTAL	14														1.00	0.47
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24
306 PLACE VALUE	1	0.09	0.26	0.20	0.25	0.38	0.39	0.15	0.37	0.46
307 NUMBER CMPARSN	2	0.10	0.11	0.15	0.15	0.25	0.30	0.04	0.07	0.23
308 NUMBER LINE	3	0.04	0.30	0.32	0.30	0.20	0.38	0.16	0.41	0.41
309 APPLICATION	4	0.09	0.11	0.15	0.16	0.31	0.36	0.09	0.24	0.35
310 RATIONALS	5	-0.18	0.05	0.18	0.03	0.20	0.13	-0.12	0.08	0.11
311 COMPUTE:ADD	6	0.07	0.20	0.22	0.22	0.18	0.33	0.08	0.36	0.34
312 COMPUTE:SUBT	7	0.03	0.21	0.21	0.21	0.26	0.33	0.01	0.28	0.32
313 COMPURE:MULT	8	0.09	0.07	0.11	0.11	0.28	0.38	0.07	0.29	0.37
321 IDFY TRIANGS	9	0.14	0.21	0.25	0.26	0.13	0.02	0.17	0.02	0.11
322 IDFY RECTS	10	0.31	0.24	0.31	0.37	0.14	0.17	0.21	0.12	0.22
323 CURVD FIGS	11	-0.02	-0.01	-0.08	-0.04	0.06	0.15	-0.11	0.11	0.09
328 CMPREHEN:GROUP	12	-0.05	0.19	0.18	0.16	0.04	0.19	0.06	0.20	0.18
329 CMPREHEN:INDIV	13	0.17	0.18	0.08	0.19	0.22	0.27	0.02	0.22	0.26
A209 ART:SAT TOTAL	14	0.06	0.10	0.08	0.10	0.19	0.32	-0.19	0.19	0.20
M324 KULH AND:IQ	15	0.13	0.37	0.44	0.42	0.41	0.42	0.18	0.44	0.51
M201 SET A:RAVEN	16	1.00	0.34	0.23	0.65	0.12	0.08	0.28	0.36	0.28
M202 SET AB:RAVEN	17		1.00	0.51	0.85	0.30	0.13	0.30	0.52	0.42
M203 SET B:RAVEN	18			1.00	0.76	0.38	0.33	0.22	0.53	0.51
M204 TOTAL:RAVEN	19				1.00	0.35	0.24	0.35	0.62	0.54
M305 VOCB:WISC SCA	20					1.00	0.59	0.31	0.30	0.76
M306 SIML:WISC SCA	21						1.00	0.21	0.46	0.81
M307 P CM:WISC SCA	22							1.00	0.29	0.59
M308 BLKD:WISC SCA	23								1.00	0.72
M311 TOTL:WISC SCA	24									1.00

N = 102 FOR CELL B1

(CONTINUED)

TABLE A4.4
(EIGHTH PAGE)

WISC SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.36	0.36	0.49	0.04	0.41	0.35	0.20	0.18	0.32	-0.23	0.30	0.30	0.43	0.52
307 NUMBER CMPARSN	2		1.00	0.39	0.38	0.17	0.22	0.33	0.14	0.25	0.28	-0.34	0.41	0.40	0.39	0.39
308 NUMBER LINE	3			1.00	0.26	-0.03	0.28	0.36	0.15	0.16	0.19	-0.22	0.23	0.48	0.45	0.32
309 APPLICATION	4				1.00	-0.11	0.41	0.46	0.36	0.24	0.17	-0.17	0.43	0.32	0.44	0.45
310 RATIONALS	5					1.00	0.03	0.07	-0.11	-0.06	0.00	-0.02	-0.09	0.00	0.05	0.11
311 COMPUTE:ADD	6						1.00	0.53	0.24	0.12	0.14	-0.09	0.33	0.41	0.54	0.43
312 COMPUTE:SUBT	7							1.00	0.23	0.04	0.21	-0.12	0.30	0.45	0.53	0.49
313 COMPURE:MULT	8								1.00	0.17	0.12	-0.19	0.32	0.18	0.30	0.26
321 IDFY TRIANGS	9									1.00	0.40	-0.46	0.27	0.27	0.20	0.17
322 IDFY RECTS	10										1.00	-0.58	0.21	0.32	0.43	0.25
323 CURVD FIGS	11											1.00	-0.21	-0.21	-0.24	-0.19
328 CMPREHEN:GROUP	12												1.00	0.35	0.40	0.32
329 CMPREHEN:INDIV	13													1.00	0.45	0.48
A209 #RT:SAT TOTAL	14														1.00	0.56
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24
306 PLACE VALUE	1	0.33	0.19	0.23	0.32	0.00	0.28	0.22	0.49	0.39
307 NUMBER CMPARSN	2	0.16	0.14	0.24	0.24	0.07	0.28	0.17	0.26	0.31
308 NUMBER LINE	3	0.30	0.05	0.16	0.22	0.05	0.20	0.10	0.24	0.23
309 APPLICATION	4	0.25	0.25	0.36	0.38	0.26	0.26	0.15	0.32	0.40
310 RATIONALS	5	-0.00	-0.15	-0.12	-0.13	-0.02	-0.08	0.12	0.10	0.04
311 COMPUTE:ADD	6	0.33	0.03	0.11	0.19	0.09	0.30	0.09	0.39	0.34
312 COMPUTE:SUBT	7	0.20	0.17	0.10	0.21	0.06	0.22	-0.05	0.30	0.21
313 COMPURE:MULT	8	0.25	0.11	0.13	0.21	0.11	0.13	0.11	0.33	0.27
321 IDFY TRIANGS	9	0.06	0.08	0.18	0.14	0.08	0.24	0.14	0.11	0.22
322 IDFY RECTS	10	0.01	0.16	0.04	0.10	0.04	0.30	0.06	0.09	0.19
323 CURVD FIGS	11	-0.10	-0.04	-0.04	-0.08	-0.10	-0.33	-0.06	0.03	-0.18
328 CMPREHEN:GROUP	12	0.15	0.18	0.18	0.22	0.24	0.37	0.09	0.34	0.42
329 CMPREHEN:INDIV	13	0.22	0.23	0.26	0.32	0.08	0.30	0.11	0.30	0.31
A209 #RT:SAT TOTAL	14	0.38	0.24	0.28	0.39	0.17	0.45	0.11	0.42	0.46
M324 KULH AND:IQ	15	0.37	0.32	0.34	0.45	0.13	0.29	0.23	0.66	0.52
M201 SET A:RAVEN	16	1.00	0.30	0.30	0.66	0.03	0.14	0.20	0.46	0.33
M202 SET AB:RAVEN	17		1.00	0.44	0.81	0.10	0.26	0.08	0.27	0.28
M203 SET B:RAVEN	18			1.00	0.78	0.24	0.18	0.17	0.32	0.36
M204 TOTAL:RAVEN	19				1.00	0.17	0.26	0.19	0.45	0.42
M305 VOCB:WISC SCA	20					1.00	0.36	0.19	0.07	0.66
M306 SIML:WISC SCA	21						1.00	0.08	0.21	0.66
M307 P CM:WISC SCA	22							1.00	0.26	0.59
M308 BLKD:WISC SCA	23								1.00	0.61
M311 TOTL:WISC SCA	24									1.00

N = 109 FOR CELL C1

(CONTINUED)

TABLE A4.4
(NINTH PAGE)

WISC SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.44	0.46	0.52	0.15	0.44	0.49	0.29	0.05	0.14	-0.04	0.44	0.34	0.42	0.48
307 NUMBER CMPARSN	2		1.00	0.49	0.52	0.18	0.48	0.35	0.11	0.27	0.23	-0.20	0.36	0.40	0.50	0.54
308 NUMBER LINE	3			1.00	0.51	0.24	0.47	0.42	0.31	0.11	0.27	-0.01	0.48	0.21	0.46	0.44
309 APPLICATION	4				1.00	0.28	0.41	0.48	0.33	0.17	0.24	-0.11	0.57	0.26	0.43	0.44
310 RATIONALS	5					1.00	0.22	0.41	0.15	0.22	0.22	-0.13	0.20	0.24	-0.04	0.36
311 COMPUTE:ADD	6						1.00	0.68	0.35	0.03	0.18	-0.04	0.25	0.47	0.48	0.63
312 COMPUTE:SUBT	7							1.00	0.34	0.22	0.28	-0.05	0.34	0.43	0.37	0.64
313 COMPURE:MULT	8								1.00	0.05	0.08	0.17	0.42	0.08	0.35	0.28
321 IDFY TRIANGS	9									1.00	0.54	-0.57	0.42	-0.04	0.22	0.22
322 IDFY RECTS	10										1.00	-0.41	0.26	0.07	0.19	0.28
323 CURVD FIGS	11											1.00	-0.30	0.16	-0.12	-0.10
328 CMPREHEN:GROUP	12												1.00	0.14	0.43	0.29
329 CMPREHEN:INDIV	13													1.00	0.30	0.52
A209 ART:SAT TOTAL	14														1.00	0.52
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24
306 PLACE VALUE	1	0.53	0.59	0.57	0.67	0.30	0.36	0.17	0.33	0.42
307 NUMBER CMPARSN	2	0.27	0.29	0.18	0.30	0.30	0.41	0.05	0.16	0.34
308 NUMBER LINE	3	0.40	0.46	0.22	0.43	0.39	0.53	0.23	0.31	0.53
309 APPLICATION	4	0.38	0.57	0.40	0.55	0.34	0.58	0.11	0.11	0.42
310 RATIONALS	5	0.19	0.31	0.28	0.32	0.26	0.24	0.27	0.35	0.40
311 COMPUTE:ADD	6	0.42	0.34	0.34	0.43	0.42	0.38	0.15	0.24	0.44
312 COMPUTE:SUBT	7	0.26	0.39	0.28	0.38	0.26	0.43	0.18	0.28	0.41
313 COMPURE:MULT	8	0.20	0.37	0.21	0.32	0.29	0.35	-0.05	0.14	0.28
321 IDFY TRIANGS	9	0.08	0.32	0.17	0.25	0.00	0.28	0.22	0.20	0.24
322 IDFY RECTS	10	0.05	0.26	0.20	0.22	-0.03	0.28	0.24	0.19	0.22
323 CURVD FIGS	11	-0.07	-0.14	-0.10	-0.13	0.06	-0.19	-0.05	-0.01	-0.06
328 CMPREHEN:GROUP	12	0.39	0.48	0.30	0.47	0.27	0.55	0.05	0.25	0.41
329 CMPREHEN:INDIV	13	0.09	0.21	0.16	0.19	0.26	0.10	0.08	0.29	0.27
A209 ART:SAT TOTAL	14	0.26	0.33	0.11	0.28	0.55	0.46	0.13	0.07	0.46
M324 KULH AND:IQ	15	0.34	0.52	0.40	0.51	0.41	0.29	0.28	0.51	0.54
M201 SET A:RAVEN	16	1.00	0.49	0.52	0.76	0.37	0.31	0.22	0.39	0.47
M202 SET AB:RAVEN	17		1.00	0.63	0.88	0.31	0.48	0.27	0.40	0.52
M203 SET B:RAVEN	18			1.00	0.86	0.32	0.36	0.46	0.56	0.59
M204 TOTAL:RAVEN	19				1.00	0.39	0.47	0.38	0.53	0.63
M305 VOCB:WISC SCA	20					1.00	0.58	0.31	0.24	0.82
M306 SIML:WISC SCA	21						1.00	0.23	0.14	0.72
M307 P CM:WISC SCA	22							1.00	0.30	0.63
M303 BLKD:WISC SCA	23								1.00	0.58
M311 TOTL:WISC SCA	24									1.00

N = 50 FOR CELL D1

(CONTINUED)

TABLE A4.4
(TENTH PAGE)

SAT SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.46	0.30	0.54	0.06	0.47	0.53	0.37	0.11	0.35	-0.12	0.26	0.42	0.46	0.14	0.49
307 NUMBER CMPARSN	2		1.00	0.16	0.41	-0.09	0.16	0.25	0.19	0.08	0.30	-0.05	0.16	0.21	0.34	0.26	0.34
308 NUMBER LINE	3			1.00	0.29	0.09	0.30	0.39	0.17	-0.12	0.01	0.14	0.20	0.19	0.29	0.21	0.32
309 APPLICATION	4				1.00	0.26	0.50	0.47	0.29	0.04	0.23	-0.02	0.40	0.34	0.44	0.27	0.52
310 RATIONALS	5					1.00	0.08	0.08	-0.03	-0.01	0.09	-0.10	0.21	0.22	0.12	-0.01	0.18
311 COMPUTE:ADD	6						1.00	0.57	0.22	0.05	0.18	-0.11	0.22	0.36	0.33	0.13	0.40
312 COMPUTE:SUBT	7							1.00	0.27	-0.08	0.26	-0.02	0.16	0.46	0.47	0.25	0.56
313 COMPURE:MULT	8								1.00	0.00	0.09	0.10	0.34	0.30	0.34	0.11	0.40
321 IDFY TRIANGS	9									1.00	0.29	-0.30	0.08	-0.13	-0.02	-0.06	-0.10
322 IDFY RECTS	10										1.00	-0.41	0.07	0.21	0.29	0.02	0.20
323 CURVD FIGS	11											1.00	0.08	-0.03	0.08	0.16	0.11
328 CMPREHEN:GROUP	12												1.00	0.21	0.25	0.17	0.32
329 CMPREHEN:INDIV	13													1.00	0.39	0.17	0.44
A209 #RT:SAT TOTAL	14														1.00	0.45	0.82
M324 KULH AND:IQ	15															1.00	0.45
A305 #RT:SAT TOTAL	16																1.00

N = 117 FOR CELL A1

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.41	0.28	0.54	0.08	0.41	0.36	0.30	0.22	0.23	-0.00	0.35	0.35	0.43	0.45	0.48
307 NUMBER CMPARSN	2		1.00	0.29	0.46	0.03	0.33	0.34	0.10	0.25	0.20	-0.12	0.27	0.31	0.33	0.43	0.41
308 NUMBER LINE	3			1.00	0.19	0.07	0.42	0.28	0.10	0.13	0.09	0.07	0.20	0.24	0.35	0.37	0.41
309 APPLICATION	4				1.00	0.09	0.54	0.55	0.35	0.25	0.16	-0.05	0.37	0.35	0.42	0.44	0.46
310 RATIONALS	5					1.00	0.17	0.14	0.11	-0.11	-0.01	0.06	0.10	-0.01	0.17	0.13	0.08
311 COMPUTE:ADD	6						1.00	0.62	0.39	0.19	0.09	0.09	0.30	0.51	0.51	0.47	0.56
312 COMPUTE:SUBT	7							1.00	0.40	0.10	0.03	0.15	0.38	0.49	0.52	0.42	0.51
313 COMPURE:MULT	8								1.00	0.05	0.02	0.11	0.33	0.41	0.42	0.30	0.38
321 IDFY TRIANGS	9									1.00	0.48	-0.39	0.29	0.08	0.10	0.16	0.16
322 IDFY RECTS	10										1.00	-0.26	0.17	0.08	0.14	0.24	0.14
323 CURVD FIGS	11											1.00	-0.06	0.07	0.14	-0.09	0.05
328 CMPREHEN:GROUP	12												1.00	0.33	0.39	0.41	0.45
329 CMPREHEN:INDIV	13													1.00	0.44	0.38	0.40
A209 #RT:SAT TOTAL	14														1.00	0.49	0.80
M324 KULH AND:IQ	15															1.00	0.61
A305 #RT:SAT TOTAL	16																1.00

N = 145 FOR CELL B1

(CONTINUED)

TABLE A4.4
(ELEVENTH PAGE)

SAT SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.40	0.33	0.44	0.11	0.44	0.34	0.17	0.12	0.27	-0.13	0.21	0.32	0.42	0.44	0.36
307 NUMBER CMPARSN	2		1.00	0.41	0.38	0.14	0.32	0.36	0.13	0.15	0.25	-0.24	0.29	0.41	0.42	0.43	0.31
308 NUMBER LINE	3			1.00	0.21	0.03	0.29	0.36	0.18	0.09	0.13	-0.15	0.14	0.43	0.49	0.38	0.34
309 APPLICATION	4				1.00	-0.05	0.34	0.38	0.32	0.13	0.12	-0.03	0.41	0.23	0.35	0.41	0.31
310 RATIONALS	5					1.00	0.08	0.05	-0.07	-0.06	0.01	-0.01	-0.08	-0.01	0.06	0.09	0.02
311 COMPUTE:ADD	6						1.00	0.55	0.20	0.02	0.14	-0.05	0.13	0.39	0.54	0.49	0.46
312 COMPUTE:SUBT	7							1.00	0.21	-0.02	0.16	-0.08	0.19	0.42	0.59	0.51	0.54
313 COMPURE:MULT	8								1.00	0.16	0.11	-0.18	0.23	0.15	0.28	0.27	0.22
321 IDFY TRIANGS	9									1.00	0.40	-0.49	0.19	0.15	0.07	0.08	0.06
322 IDFY RECTS	10										1.00	-0.60	0.12	0.25	0.31	0.20	0.24
323 CURVD FIGS	11											1.00	-0.11	-0.11	-0.16	-0.15	-0.13
328 CMPREHEN:GROUP	12												1.00	0.26	0.26	0.24	0.20
329 CMPREHEN:INDIV	13													1.00	0.47	0.42	0.40
A209 #RT:SAT TOTAL	14														1.00	0.56	0.81
M324 KULH AND:IQ	15															1.00	0.53
A305 #RT:SAT TOTAL	16																1.00

N = 155 FOR CELL C1

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.51	0.52	0.57	0.19	0.45	0.54	0.32	0.04	0.18	-0.13	0.49	0.27	0.35	0.47	0.44
307 NUMBER CMPARSN	2		1.00	0.54	0.57	0.14	0.49	0.50	0.23	0.15	0.14	-0.11	0.46	0.41	0.43	0.51	0.41
308 NUMBER LINE	3			1.00	0.48	0.23	0.37	0.46	0.26	0.09	0.20	0.07	0.47	0.18	0.39	0.41	0.37
309 APPLICATION	4				1.00	0.17	0.45	0.54	0.33	0.11	0.16	-0.05	0.57	0.27	0.38	0.43	0.47
310 RATIONALS	5					1.00	0.11	0.34	0.15	0.23	0.26	-0.09	0.20	0.12	0.06	0.32	0.05
311 COMPUTE:ADD	6						1.00	0.63	0.33	0.04	0.13	-0.07	0.30	0.38	0.43	0.55	0.52
312 COMPUTE:SUBT	7							1.00	0.32	0.19	0.24	-0.04	0.39	0.36	0.41	0.64	0.41
313 COMPURE:MULT	8								1.00	0.07	0.09	0.09	0.45	0.05	0.31	0.29	0.36
321 IDFY TRIANGS	9									1.00	0.53	-0.57	0.28	-0.01	0.26	0.19	0.07
322 IDFY RECTS	10										1.00	-0.42	0.22	0.04	0.26	0.21	0.10
323 CURVD FIGS	11											1.00	-0.17	0.12	-0.15	-0.12	-0.06
328 CMPREHEN:GROUP	12												1.00	0.11	0.40	0.33	0.39
329 CMPREHEN:INDIV	13													1.00	0.27	0.38	0.34
A209 #RT:SAT TOTAL	14														1.00	0.53	0.82
M324 KULH AND:IQ	15															1.00	0.57
A305 #RT:SAT TOTAL	16																1.00

N = 81 FOR CELL D1

Table A4.5
Regression Weights by Cell
for End-of-Second-Grade Scales
Using End-of-First-Grade Scales as Covariates
Selected Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 501 VOCABULARY (GROUP)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.191	0.095	0.217	0.145	0.182	0.209
309 APPLICATION	0.243	0.227	0.113	0.294	0.198	0.232
312 COMPUTE:SUB	0.359	0.146	0.199	0.058	0.239	0.270
M324 IQ:KUHL-ANDER	0.064	0.208	0.440	0.166	0.194	0.195

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.424	0.211	0.483	0.324	0.404	0.466
309 APPLICATION	0.505	0.472	0.236	0.612	0.412	0.483
312 COMPUTE:SUB	0.393	0.160	0.218	0.063	0.262	0.295
M324 IQ:KUHL-ANDER	0.016	0.052	0.110	0.041	0.048	0.049
RSQ	0.364	0.443	0.470	0.478	0.404	0.488
R	0.604	0.666	0.685	0.691	0.635	0.699
F	17.635	28.671	35.219	17.834	87.859	123.906
P	0.000	0.000	0.000	0.000	0.000	0.0

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DEPENDENT VARIABLE -- 502 WHOLE NUMBER COMPREHENSION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
308 NUMBER LINE	0.159	0.167	0.026	0.158	0.121	0.144
312 COMPUTE:SUB	0.215	0.217	0.131	0.206	0.201	0.240
A209 #RT:SAT TOTAL	0.276	0.094	0.235	0.153	0.179	0.187
M324 IQ:KUHL-ANDER	0.123	0.267	0.349	0.157	0.227	0.212

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
308 NUMBER LINE	0.236	0.249	0.039	0.234	0.179	0.214
312 COMPUTE:SUB	0.131	0.132	0.080	0.126	0.123	0.147
A209 #RT:SAT TOTAL	0.033	0.011	0.028	0.019	0.022	0.023
M324 IQ:KUHL-ANDER	0.017	0.037	0.049	0.022	0.032	0.029
RSQ	0.310	0.313	0.336	0.326	0.311	0.371
R	0.557	0.559	0.579	0.571	0.557	0.609
F	13.380	16.517	20.471	9.563	58.584	76.834
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A4.5
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VAPIABLE -- 503 NUMBER COMPARISON: ORDER

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.126	0.124	0.188	0.152	0.150	0.173
308 NUMBER LINE	0.156	0.203	0.147	0.033	0.167	0.216
309 APPLICATION	0.273	0.135	0.086	0.214	0.152	0.180
312 COMPUTE:SUB	0.292	0.124	0.232	0.130	0.221	0.256
M324 IQ:KUHL-ANDER	0.071	0.214	0.264	0.135	0.157	0.139

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.158	0.155	0.235	0.190	0.187	0.216
308 NUMBER LINE	0.231	0.300	0.217	0.049	0.247	0.319
309 APPLICATION	0.318	0.158	0.101	0.249	0.177	0.210
312 COMPUTE:SUB	0.179	0.076	0.142	0.080	0.135	0.157
M324 IQ:KUHL-ANDER	0.010	0.030	0.037	0.019	0.022	0.019
RSQ	0.360	0.474	0.465	0.414	0.411	0.515
R	0.600	0.688	0.682	0.643	0.641	0.718
F	13.753	25.753	27.463	10.878	72.233	109.975
P	0.000	0.000	0.000	0.000	0.000	0.0

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DEPENDENT VAPIABLE -- 504 PLACE VALUE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	0.293	0.203	0.212	0.416	0.252	0.280
309 APPLICATION	0.036	0.293	0.196	0.173	0.197	0.211
312 COMPUTE:SUB	0.252	0.318	0.169	0.131	0.242	0.273
A209 ART:SAT TOTAL	0.134	0.099	0.279	0.153	0.167	0.169

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	0.310	0.215	0.225	0.440	0.267	0.295
309 APPLICATION	0.113	0.390	0.256	0.226	0.257	0.275
312 COMPUTE:SUB	0.174	0.219	0.116	0.090	0.167	0.188
A209 ART:SAT TOTAL	0.018	0.013	0.038	0.021	0.023	0.023
RSQ	0.425	0.612	0.424	0.486	0.472	0.558
R	0.652	0.782	0.651	0.697	0.687	0.747
F	25.822	55.990	29.017	17.713	119.317	167.143
P	0.000	0.000	0.000	0.000	0.0	0.0

(continued)

Table A4.5
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 505 NUMBER LINE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.134	0.362	0.017	0.302	0.169	0.194
308 NUMBER LINE	0.188	0.090	0.237	0.221	0.188	0.245
M324 IQ:KUHL-ANDER	0.150	0.231	0.255	0.090	0.202	0.191

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.120	0.323	0.015	0.269	0.151	0.173
308 NUMBER LINE	0.200	0.095	0.252	0.235	0.200	0.260
M324 IQ:KUHL-ANDER	0.016	0.023	0.025	0.009	0.020	0.019
RSQ	0.144	0.266	0.166	0.202	0.177	0.242
R	0.380	0.515	0.408	0.449	0.421	0.492
F	6.967	17.279	10.621	6.404	36.814	54.478
P	0.000	0.000	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 506 APPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.193	0.179	0.133	0.330	0.214	0.240
312 COMPUTE:SUB	0.333	0.245	0.153	0.476	0.276	0.327
M324 IQ:KUHL-ANDER	0.174	0.231	0.379	0.056	0.225	0.210

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.207	0.202	0.150	0.441	0.242	0.271
312 COMPUTE:SUB	0.324	0.144	0.090	0.281	0.153	0.193
M324 IQ:KUHL-ANDER	0.023	0.031	0.051	0.007	0.030	0.028
RSQ	0.320	0.300	0.300	0.553	0.325	0.397
R	0.566	0.548	0.548	0.744	0.571	0.630
F	10.164	20.730	24.482	31.724	83.642	113.498
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A4.5
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 507 RATIONALS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.078	0.173	0.158	0.186	0.152	0.186
311 COMPUTE:ADD	0.122	0.083	0.176	0.259	0.140	0.159
M324 IQ:KUHL-ANDER	0.257	0.040	0.226	0.192	0.166	0.179

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.074	0.164	0.149	0.176	0.144	0.176
311 COMPUTE:ADD	0.085	0.058	0.123	0.181	0.098	0.111
M324 IQ:KUHL-ANDER	0.030	0.005	0.026	0.023	0.019	0.021
RSQ	0.133	0.070	0.194	0.182	0.131	0.183
R	0.364	0.264	0.441	0.426	0.362	0.427
F	4.640	3.620	13.174	5.698	24.452	36.407
P	0.005	0.015	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 508 ORDERING PICTURED SETS (GROUP)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.173	0.093	0.145	0.277	0.165	0.206
312 COMPUTE:SUB	0.428	0.177	0.206	0.121	0.278	0.341
M324 IQ:KUHL-ANDER	-0.043	0.261	0.366	0.192	0.163	0.144

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.133	0.072	0.112	0.213	0.127	0.159
312 COMPUTE:SUB	0.162	0.067	0.078	0.046	0.105	0.129
M324 IQ:KUHL-ANDER	-0.004	0.022	0.031	0.016	0.014	0.012
RSQ	0.223	0.193	0.338	0.257	0.228	0.436
R	0.476	0.439	0.581	0.507	0.478	0.553
F	12.032	11.396	27.177	8.767	50.627	75.473
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A4.5
(fifth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 509 COUNTING

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
311 COMPUTE:ADD	0.027	0.310	0.183	0.016	0.142	0.129
M324 IQ:KUHL-ANDER	0.108	-0.112	0.162	0.171	0.085	0.101

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
311 COMPUTE:ADD	0.006	0.067	0.040	0.004	0.031	0.028
M324 IQ:KUHL-ANDER	0.004	-0.004	0.006	0.006	0.003	0.004
RSQ	0.014	0.061	0.065	0.050	0.033	0.037
R	0.115	0.248	0.256	0.224	0.182	0.192
F	0.843	4.769	5.811	2.062	8.023	10.026
P	0.433	0.010	0.004	0.134	0.000	0.000

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DEPENDENT VARIABLE -- 510 COMPUTATION: ADDITION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.123	0.191	0.199	0.065	0.165	0.187
311 COMPUTE:ADD	0.172	0.437	0.251	0.428	0.294	0.340
312 COMPUTE:SUB	0.295	0.003	0.150	0.286	0.205	0.260
M324 IQ:KUHL-ANDER	-0.051	0.153	0.314	-0.012	0.109	0.057

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.171	0.265	0.276	0.090	0.228	0.259
311 COMPUTE:ADD	0.157	0.401	0.230	0.392	0.270	0.312
312 COMPUTE:SUB	0.270	0.002	0.102	0.195	0.140	0.174
M324 IQ:KUHL-ANDER	-0.008	0.024	0.048	-0.002	0.017	0.009
RSQ	0.274	0.497	0.493	0.331	0.368	0.430
R	0.524	0.705	0.702	0.574	0.607	0.671
F	11.427	34.645	37.077	9.237	73.907	103.346
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A4.5
(sixth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- E11 COMPUTATION: SUBTRACTION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.137	0.062	0.130	0.123	0.129	0.146
311 COMPUTE:ADD	0.088	0.347	0.232	0.403	0.239	0.279
312 COMPUTE:SUB	0.455	0.036	0.116	0.335	0.223	0.269
M324 IQ:KUHL-ANDER	-0.059	0.298	0.349	0.023	0.162	0.125

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.193	0.087	0.183	0.173	0.180	0.205
311 COMPUTE:ADD	0.092	0.321	0.215	0.373	0.221	0.259
312 COMPUTE:SUB	0.214	0.025	0.080	0.231	0.154	0.185
M324 IQ:KUHL-ANDER	-0.009	0.046	0.055	0.004	0.025	0.020
RSQ	0.313	0.410	0.371	0.459	0.334	0.410
R	0.559	0.640	0.609	0.677	0.578	0.641
F	13.757	24.293	23.030	15.878	63.689	88.252
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- E12 COMPUTATION: MULTIPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	0.101	0.160	0.110	0.279	0.146	0.209
312 COMPUTE:SUB	0.177	0.233	0.104	0.187	0.155	0.218
313 COMPUTE:MULT	0.011	0.076	0.122	0.124	0.117	0.151
A209 ART:SAT TOTAL	0.132	0.253	0.005*	0.378	0.174	0.191
M324 IQ:KUHL-ANDER	0.113	0.241	0.298	0.163	0.207	0.175

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	0.120	0.189	0.130	0.331	0.173	0.227
312 COMPUTE:SUB	0.133	0.180	0.080	0.144	0.119	0.168
313 COMPUTE:MULT	0.039	0.273	0.446	0.454	0.429	0.555
A209 ART:SAT TOTAL	0.020	0.039	0.001	0.056	0.027	0.028
M324 IQ:KUHL-ANDER	0.020	0.043	0.050	0.028	0.036	0.030
RSQ	0.307	0.467	0.289	0.538	0.379	0.470
R	0.554	0.683	0.538	0.733	0.616	0.685
F	10.270	24.173	12.353	17.204	60.775	88.237
P	0.000	0.000	0.000	0.000	0.000	0.0

(continued)

Table A4.5
(seventh page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 521 IDENTIFYING POLYGONS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.122	0.241	0.058	-0.064	0.111	0.104
321 IDFY TRIANGS	-0.008	0.071	0.076	0.011	0.042	0.077
329 CMPREHEN:INDIV	0.076	0.272	-0.091	0.137	0.090	0.108

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.186	0.369	0.086	-0.098	0.169	0.159
321 IDFY TRIANGS	-0.011	0.098	0.104	0.015	0.059	0.106
329 CMPREHEN:INDIV	0.150	0.534	-0.180	0.270	0.178	0.213
RSQ	0.020	0.095	0.034	0.056	0.028	0.039
R	0.140	0.308	0.185	0.256	0.168	0.196
F	0.993	5.018	1.886	1.840	5.236	7.226
P	0.403	0.002	0.134	0.149	0.001	0.000

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DEPENDENT VARIABLE -- 522 CURVED AND OPEN FIGURES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
308 NUMBER LINE	-0.073	-0.044	-0.104	-0.072	-0.086	-0.095
311 COMPUTE:ADD	0.045	0.096	0.093	-0.044	0.070	0.148
321 IDFY TRIANGS	-0.017	0.028	-0.094	-0.042	-0.033	-0.073
329 CMPREHEN:GROUP	0.020	0.141	0.142	0.007	0.093	0.091

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
308 NUMBER LINE	-0.079	-0.049	-0.113	-0.078	-0.093	-0.102
311 COMPUTE:ADD	0.027	0.058	0.057	-0.029	0.043	0.090
321 IDFY TRIANGS	-0.014	0.022	-0.074	-0.033	-0.026	-0.057
329 CMPREHEN:GROUP	0.026	0.183	0.189	0.009	0.124	0.122
RSQ	0.003	0.051	0.050	0.014	0.015	0.033
R	0.058	0.225	0.224	0.118	0.124	0.182
F	0.122	1.883	2.104	0.274	2.091	4.600
P	0.975	0.117	0.083	0.934	0.080	0.001

(continued)

Table A4.5
(eighth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 523 IDENTIFYING TRIANGLES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
313 COMPUTE:MULT	-0.052	0.141	0.087	0.148	0.110	0.158
321 IDEN TRIANGS	0.270	0.144	0.280	0.160	0.220	0.219
M324 IQ:KUHL-ANDER	-0.019	0.066	0.102	0.214	0.035	0.038

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
313 COMPUTE:MULT	-0.144	0.392	0.243	0.413	0.306	0.440
321 IDEN TRIANGS	0.274	0.147	0.287	0.164	0.226	0.224
M324 IQ:KUHL-ANDER	-0.003	-0.009	0.013	0.028	0.005	0.005
RSQ	0.035	0.068	0.109	0.156	0.066	0.083
R	0.188	0.261	0.330	0.395	0.256	0.288
F	1.493	3.426	6.404	4.682	11.854	15.321
P	0.222	0.019	0.000	0.005	0.000	0.000

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DEPENDENT VARIABLE -- 524 CONGRUENCE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	-0.122	0.205	0.159	-0.033	0.090	0.081
312 COMPUTE:SUB	0.170	-0.036	-0.212	-0.074	-0.071	-0.056
328 COMPREHEN:GROUP	0.144	0.003	0.120	0.071	0.081	0.067

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	-0.059	0.093	0.077	-0.016	0.044	0.039
312 COMPUTE:SUB	0.056	-0.011	-0.067	-0.023	-0.022	-0.018
328 COMPREHEN:GROUP	0.134	0.003	0.111	0.066	0.075	0.062
RSQ	0.020	0.042	0.059	0.005	0.014	0.011
R	0.140	0.207	0.244	0.071	0.117	0.107
F	1.421	3.123	3.571	0.133	2.496	2.067
P	0.231	0.101	0.020	0.940	0.059	0.103

(continued)

Table A4.5
(ninth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 525 SIMILARITY

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
310	RATIONALS	0.121	0.119	-0.057	0.084	0.076	0.098
313	COMPUTE:MULT	0.107	0.186	-0.012	0.023	0.111	0.151
323	CURVED FIGURES	-0.008	-0.062	0.145	0.055	0.048	0.058

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
310	RATIONALS	0.069	0.068	-0.032	0.048	0.043	0.056
313	COMPUTE:MULT	0.123	0.214	-0.014	0.026	0.129	0.185
323	CURVED FIGURES	-0.004	-0.032	0.076	0.029	0.025	0.031
	RSQ	0.022	0.060	0.040	0.011	0.021	0.043
	R	0.149	0.245	0.201	0.105	0.144	0.208
	F	1.096	3.020	2.237	0.291	3.789	8.111
	P	0.352	0.032	0.086	0.832	0.010	0.000

(continued)

Table A4.5
(tenth page)

B. WISC Scales

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DEPENDENT VARIABLE -- M305 WISC VOCABULARY SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.145	0.171	0.140	0.154	0.146	0.245
309 APPLICATION	0.124	0.140	0.197	0.097	0.143	0.205
310 RATIONALS	0.069	0.112	0.058	0.069	0.079	0.099
M324 IQ:KUHL-ANDER	0.196	0.201	-0.000	0.285	0.158	0.151

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.116	0.137	0.112	0.124	0.117	0.197
309 APPLICATION	0.256	0.291	0.407	0.201	0.296	0.426
310 RATIONALS	0.172	0.279	0.146	0.171	0.198	0.248
M324 IQ:KUHL-ANDER	0.047	0.048	-0.000	0.068	0.038	0.039
RSQ	0.174	0.228	0.092	0.215	0.156	0.261
R	0.418	0.478	0.303	0.464	0.395	0.511
F	5.175	7.397	2.866	3.220	17.262	32.878
P	0.001	0.000	0.026	0.020	0.000	0.000

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DEPENDENT VARIABLE -- M306 WISC SIMILARITIES SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M203 SET B:RAVEN	0.105	0.204	0.081	0.174	0.148	0.163
307 NUMBER CMPARSN	0.231	0.214	0.222	0.180	0.200	0.210
308 NUMBER LINE	0.182	0.386	0.051	0.356	0.179	0.202
313 COMPUTE:MULT	-0.095	0.254	0.107	0.159	0.169	0.188

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M203 SET B:RAVEN	0.197	0.380	0.151	0.325	0.276	0.305
307 NUMBER CMPARSN	0.479	0.444	0.460	0.374	0.413	0.436
308 NUMBER LINE	0.436	0.928	0.122	0.855	0.430	0.485
313 COMPUTE:MULT	-0.449	1.195	0.501	0.749	0.796	0.884
RSQ	0.148	0.315	0.104	0.396	0.186	0.269
R	0.384	0.561	0.323	0.629	0.431	0.519
F	4.597	11.264	3.223	7.370	21.387	34.570
P	0.002	0.000	0.015	0.000	0.000	0.000

(continued)

Table A4.5
(eleventh page)

B. WISC Scales (continued)

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DEPENDENT VARIABLE -- M307 WISC PICTURE COMPLETION SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.104	0.341	0.114	0.371	0.193	0.237
306 PLACE VALUE	0.257	0.068	0.122	-0.209	0.116	0.152
M324 IQ:KUHL-ANDER	0.225	-0.007	0.132	0.141	0.121	0.108

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.069	0.227	0.076	0.247	0.128	0.157
306 PLACE VALUE	0.339	0.090	0.161	-0.275	0.153	0.200
M324 IQ:KUHL-ANDER	0.044	-0.001	0.026	0.028	0.024	0.021
RSQ	0.180	0.126	0.076	0.174	0.105	0.159
R	0.425	0.355	0.276	0.417	0.324	0.398
F	7.333	4.792	3.022	3.226	14.433	23.148
P	0.000	0.004	0.033	0.031	0.000	0.000

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DEPENDENT VARIABLE -- M308 WISC BLOCK DESIGN SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.157	0.520	0.164	0.355	0.305	0.335
306 PLACE VALUE	0.125	0.156	0.170	-0.147	0.137	0.170
308 NUMBER LINE	0.160	0.281	-0.025	0.040	0.105	0.112
M324 IQ:KUHL-ANDER	0.057	0.065	0.528	0.302	0.219	0.207

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.111	0.369	0.116	0.252	0.217	0.238
306 PLACE VALUE	0.176	0.219	0.240	-0.207	0.133	0.240
308 NUMBER LINE	0.359	0.630	-0.057	0.089	0.235	0.252
M324 IQ:KUHL-ANDER	0.012	0.014	0.111	0.064	0.046	0.044
RSQ	0.155	0.442	0.475	0.371	0.324	0.401
R	0.393	0.665	0.689	0.609	0.569	0.633
F	4.392	18.433	24.390	6.642	43.341	60.654
P	0.003	0.000	0.000	0.000	0.000	0.000

(continued)

Table A4.5
(twelfth page)

B. WISC Scales (continued)

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DEPENDENT VARIABLE -- M311 WISC TOTAL SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.175	0.344	0.194	0.402	0.258	0.320
306 PLACE VALUE	0.243	0.224	0.113	-0.161	0.171	0.225
308 NUMBER LINE	0.122	0.240	0.021	0.310	0.122	0.174
M324 IQ:KUHL-ANDER	0.197	0.160	0.302	0.208	0.218	0.196

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.379	0.746	0.421	0.871	0.559	0.694
306 PLACE VALUE	1.045	0.964	0.488	-0.694	0.735	0.975
308 NUMBER LINE	0.832	1.644	0.147	2.122	0.834	1.187
M324 IQ:KUHL-ANDER	0.127	0.103	0.194	0.134	0.140	0.125
RSQ	0.341	0.423	0.325	0.521	0.366	0.482
R	0.584	0.650	0.570	0.722	0.605	0.694
F	12.433	17.951	12.975	12.257	52.261	84.307
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A4.5
(thirteenth page)

C. SAT Scale

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DEPENDENT VARIABLE -- A30F SAT-2 TOTAL READING NUMBER RIGHT

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
A209 #RT:SAT TOTAL	0.796	0.683	0.629	0.624	0.675	0.717
M324 IQ:KUHL-ANDER	0.091	0.300	0.116	0.234	0.184	0.199

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
A209 #RT:SAT TOTAL	0.956	0.820	0.756	0.750	0.811	0.861
M324 IQ:KUHL-ANDER	0.128	0.422	0.164	0.329	0.259	0.280
RSQ	0.673	0.711	0.673	0.672	0.675	0.705
R	0.820	0.843	0.820	0.820	0.821	0.840
F	119.206	179.919	182.583	93.056	539.024	621.716
P	0.000	0.000	0.000	0.000	0.0	0.0

Table A5.1
Correlations of End-of-Third-Grade Scales and End-of-Second-Grade Scales
Total Sample

A. Mathematics Scales

		1	2	3	4	5	6	7	8	9	10	11	12
1	7C1 NUMBER CMPARSN	1.00	0.50	0.38	0.49	0.29	0.45	0.44	0.50	0.47	0.48	0.44	0.50
2	7C2 PLACE VALUE		1.00	0.44	0.64	0.46	0.48	0.53	0.61	0.62	0.61	0.59	0.59
3	7C3 NUMBER LINE			1.00	0.45	0.31	0.36	0.34	0.41	0.36	0.45	0.43	0.35
4	7C4 APPLICATION				1.00	0.45	0.54	0.54	0.64	0.55	0.64	0.54	0.57
5	7C5 RATIONALS					1.00	0.37	0.34	0.43	0.41	0.46	0.44	0.41
6	7C6 STRUCT OF SPAC						1.00	0.42	0.47	0.47	0.45	0.46	0.47
7	7C7 COMPUTE:ADD							1.00	0.67	0.59	0.69	0.47	0.54
8	7C8 COMPUTE:SUBT								1.00	0.61	0.71	0.54	0.60
9	7C9 COMPUTE:MULT									1.00	0.67	0.58	0.55
10	727 COMPUTE NLSMA										1.00	0.64	0.58
11	728 STRUCTURE NLSM											1.00	0.48
12	501 VOCABULARY												1.00

		13	14	15	16	17	18	19	20
1	7C1 NUMBER CMPARSN	0.46	0.52	0.49	0.32	0.46	0.28	0.43	0.13
2	7C2 PLACE VALUE	0.55	0.56	0.62	0.35	0.57	0.34	0.47	0.10
3	7C3 NUMBER LINE	0.34	0.36	0.38	0.39	0.34	0.22	0.31	0.08
4	7C4 APPLICATION	0.53	0.57	0.57	0.34	0.59	0.31	0.47	0.13
5	7C5 RATIONALS	0.37	0.40	0.42	0.25	0.42	0.38	0.37	0.06
6	7C6 STRUCT OF SPAC	0.44	0.48	0.45	0.34	0.41	0.25	0.38	0.15
7	7C7 COMPUTE:ADD	0.50	0.54	0.50	0.38	0.51	0.29	0.48	0.19
8	7C8 COMPUTE:SUBT	0.55	0.59	0.59	0.41	0.59	0.36	0.49	0.20
9	7C9 COMPUTE:MULT	0.52	0.54	0.52	0.31	0.53	0.32	0.52	0.15
10	727 COMPUTE NLSMA	0.54	0.58	0.56	0.35	0.60	0.41	0.52	0.15
11	728 STRUCTURE NLSM	0.50	0.52	0.55	0.35	0.54	0.37	0.44	0.14
12	501 VOCABULARY	0.58	0.70	0.60	0.40	0.61	0.36	0.56	0.21
13	502 COMPREHENSION	1.00	0.56	0.53	0.37	0.54	0.28	0.49	0.15
14	503 NUMBER CMPARSN		1.00	0.57	0.40	0.55	0.33	0.51	0.19
15	504 PLACE VALUE			1.00	0.44	0.56	0.36	0.46	0.10
16	505 NUMBER LINE				1.00	0.36	0.24	0.34	0.16
17	506 APPLICATION					1.00	0.39	0.52	0.14
18	5C7 RATIONALS						1.00	0.28	0.07
19	5C8 ORDR:PICSET:GP							1.00	0.14
20	509 COUNTING:GROUP								1.00

(continued)

Table A5.1 (second page) -- A. Mathematics Scales (continued)

		21	22	23	24	25	26	27	28	29	30	31	32	33
1	701 NUMBER CMPARSN	0.43	0.41	0.40	0.17	-0.01	0.15	-0.02	0.12	0.43	0.40	0.38	0.29	0.35
2	702 PLACE VALUE	0.57	0.54	0.55	0.14	0.05	0.13	-0.01	0.10	0.59	0.49	0.46	0.29	0.48
3	703 NUMBER LINE	0.33	0.33	0.33	0.17	-0.00	0.12	0.05	0.11	0.43	0.32	0.30	0.28	0.35
4	704 APPLICATION	0.52	0.52	0.50	0.21	0.01	0.14	0.06	0.07	0.54	0.44	0.41	0.25	0.42
5	705 RATIONALS	0.42	0.38	0.46	0.05	0.05	0.10	-0.01	0.11	0.40	0.34	0.33	0.21	0.37
6	706 STRUCT OF SPAC	0.36	0.37	0.41	0.21	0.01	0.15	0.05	0.12	0.48	0.38	0.33	0.25	0.36
7	707 COMPUTE:ADD	0.59	0.54	0.43	0.11	-0.01	0.10	-0.02	0.10	0.53	0.35	0.31	0.27	0.35
8	708 COMPUTE:SUBT	0.57	0.57	0.53	0.17	-0.03	0.12	0.00	0.12	0.59	0.41	0.37	0.31	0.45
9	709 COMPUTE:MULT	0.60	0.60	0.54	0.15	0.04	0.12	-0.02	0.10	0.57	0.34	0.33	0.27	0.40
10	727 COMPUTE NLSMA	0.61	0.62	0.56	0.10	0.01	0.12	0.01	0.04	0.61	0.38	0.38	0.27	0.45
11	728 STRUCTURE NLSM	0.54	0.52	0.58	0.16	0.06	0.20	-0.01	0.09	0.55	0.37	0.35	0.32	0.46
12	501 VOCABULARY	0.52	0.55	0.46	0.14	0.03	0.19	-0.00	0.11	0.59	0.51	0.51	0.29	0.42
13	502 COMPREHENSION	0.53	0.54	0.48	0.13	-0.00	0.17	0.00	0.08	0.57	0.41	0.40	0.25	0.41
14	503 NUMBER CMPARSN	0.57	0.51	0.48	0.15	0.06	0.15	0.00	0.05	0.56	0.45	0.46	0.29	0.41
15	504 PLACE VALUE	0.53	0.52	0.57	0.19	0.06	0.19	-0.02	0.08	0.57	0.49	0.47	0.34	0.44
16	505 NUMBER LINE	0.35	0.37	0.33	0.21	-0.06	0.17	0.02	0.12	0.34	0.33	0.31	0.25	0.30
17	506 APPLICATION	0.57	0.59	0.50	0.18	0.03	0.15	0.03	0.01	0.53	0.43	0.44	0.26	0.37
18	507 RATIONALS	0.31	0.34	0.36	0.04	0.03	0.07	-0.01	0.02	0.31	0.36	0.29	0.26	0.32
19	508 ORDR:PICSET:GP	0.47	0.53	0.43	0.15	0.02	0.06	0.00	0.07	0.44	0.33	0.39	0.20	0.33
20	509 COUNTING:GROUP	0.13	0.15	0.11	-0.00	0.05	-0.01	-0.04	0.02	0.18	0.07	0.06	0.03	0.08
21	510 COMPUTE:ADD	1.00	0.70	0.53	0.06	0.03	0.06	0.01	0.04	0.55	0.30	0.33	0.28	0.39
22	511 COMPUTE:SUBT		1.00	0.55	0.06	0.04	0.07	-0.02	0.12	0.56	0.31	0.40	0.22	0.35
23	512 COMPUTE:MULT			1.00	0.09	0.07	0.12	-0.01	0.14	0.52	0.34	0.39	0.27	0.46
24	521 IDFY POLGYS				1.00	-0.17	0.17	0.08	0.01	0.18	0.15	0.14	0.12	0.04
25	522 CRVD&OPEN FIGS					1.00	-0.11	-0.02	0.01	-0.01	0.02	0.05	-0.04	0.09
26	523 IDFY TRIANGS						1.00	0.10	-0.08	0.16	0.15	0.16	0.19	0.14
27	524 CONGRUENCE							1.00	-0.31	-0.04	-0.01	0.04	-0.00	0.02
28	525 SIMILARITY								1.00	0.12	0.11	0.05	0.05	0.09
29	A305 #RT:SAT TOTAL									1.00	0.48	0.44	0.23	0.41
30	M305 VOCAB:WISC SC										1.00	0.60	0.40	0.41
31	M306 SIML:WISC SCA											1.00	0.28	0.39
32	M307 P.CM:WISC SCA												1.00	0.39
33	M308 BLKD:WISC SCA													1.00

(continued)

Table A5.1 (third page) -- B. SAT Scales

		1	2	3	4	5	6	7	8	9	10	11	12
1	A401 #RT:SAT WORD	1.00	0.84	0.94	0.64	0.54	0.58	0.59	0.35	0.52	0.34	0.47	0.21
2	A403 #RT:SAT PGPH		1.00	0.98	0.64	0.59	0.62	0.60	0.38	0.55	0.34	0.49	0.22
3	A405 #RT:SAT TOTAL			1.00	0.66	0.59	0.63	0.62	0.38	0.56	0.35	0.50	0.23
4	501 VOCABULARY				1.00	0.57	0.69	0.60	0.41	0.60	0.38	0.55	0.22
5	502 COMPREHENSION					1.00	0.56	0.53	0.39	0.53	0.29	0.48	0.16
6	503 NUMBER CMPARSN						1.00	0.57	0.41	0.55	0.35	0.52	0.19
7	504 PLACE VALUE							1.00	0.44	0.57	0.38	0.46	0.11
8	505 NUMBER LINE								1.00	0.37	0.24	0.36	0.18
9	506 APPLICATION									1.00	0.40	0.52	0.16
10	507 RATIONALS										1.00	0.28	0.09
11	508 ORDR:PICSET:GP											1.00	0.14
12	509 COUNTING:GROUP												1.00

		13	14	15	16	17	18
1	A401 #RT:SAT WORD	0.52	0.53	0.50	0.20	-0.02	0.18
2	A403 #RT:SAT PGPH	0.57	0.55	0.51	0.19	0.05	0.19
3	A405 #RT:SAT TOTAL	0.57	0.56	0.53	0.20	0.02	0.19
4	501 VOCABULARY	0.51	0.54	0.46	0.15	0.04	0.18
5	502 COMPREHENSION	0.52	0.53	0.47	0.13	0.01	0.16
6	503 NUMBER CMPARSN	0.57	0.51	0.48	0.17	0.06	0.14
7	504 PLACE VALUE	0.54	0.53	0.58	0.19	0.07	0.19
8	505 NUMBER LINE	0.34	0.34	0.32	0.22	-0.04	0.18
9	506 APPLICATION	0.56	0.58	0.50	0.19	0.04	0.15
10	507 RATIONALS	0.32	0.34	0.37	0.06	0.03	0.07
11	508 ORDR:PICSET:GP	0.47	0.52	0.43	0.16	0.03	0.08
12	509 COUNTING:GROUP	0.13	0.13	0.12	0.01	0.03	-0.01
13	510 COMPUTE:ADD	1.00	0.71	0.53	0.06	0.09	0.06
14	511 COMPUTE:SUBT		1.00	0.55	0.07	0.06	0.06
15	512 COMPUTE:MULT			1.00	0.10	0.09	0.11
16	521 IDFY POLGYS				1.00	-0.18	0.16
17	522 CRVD&OPEN FIGS					1.00	-0.11
18	523 IDFY TRIANGS						1.00

(continued)

Table A5.1 (fourth page) -- B. SAT Scales (continued)

		19	20	21	22	23	24	25	26	27
1	A401 #RT:SAT WORD	-0.02	0.10	0.77	0.79	0.81	0.49	0.47	0.25	0.42
2	A403 #RT:SAT PGPH	-0.02	0.11	0.74	0.81	0.82	0.49	0.48	0.26	0.48
3	A405 #RT:SAT TOTAL	-0.02	0.11	0.78	0.83	0.84	0.51	0.49	0.27	0.47
4	501 VOCABULARY	-0.01	0.11	0.54	0.58	0.59	0.50	0.49	0.29	0.43
5	502 COMPREHENSION	0.01	0.07	0.50	0.55	0.56	0.39	0.39	0.25	0.40
6	503 NUMBER CMPARSN	0.01	0.04	0.50	0.56	0.56	0.45	0.46	0.30	0.42
7	504 PLACE VALUE	-0.02	0.06	0.55	0.57	0.59	0.49	0.46	0.35	0.47
8	505 NUMBER LINE	0.02	0.11	0.31	0.36	0.35	0.33	0.30	0.26	0.31
9	506 APPLICATION	0.02	0.01	0.47	0.53	0.53	0.41	0.42	0.26	0.38
10	507 RATIONALS	-0.02	0.01	0.29	0.30	0.31	0.35	0.27	0.27	0.32
11	508 ORDR:PICSET:GP	0.01	0.06	0.39	0.45	0.45	0.33	0.39	0.22	0.34
12	509 COUNTING:GROUP	-0.04	0.02	0.13	0.19	0.17	0.07	0.06	0.05	0.09
13	510 COMPUTE:ADD	0.02	0.03	0.46	0.56	0.54	0.31	0.33	0.28	0.40
14	511 COMPUTE:SUBT	-0.00	0.10	0.48	0.58	0.56	0.31	0.40	0.22	0.37
15	512 COMPUTE:MULT	-0.00	0.12	0.48	0.52	0.52	0.33	0.37	0.26	0.48
16	521 IDFY POLGYS	0.07	0.01	0.17	0.16	0.17	0.14	0.15	0.12	0.06
17	522 CRVD&OPEN FIGS	-0.01	0.01	-0.01	0.01	0.00	0.03	0.05	-0.01	0.09
18	523 IDFY TRIANGS	0.10	-0.08	0.15	0.16	0.15	0.15	0.18	0.19	0.14
19	524 CONGRUENCE	1.00	-0.32	-0.02	-0.03	-0.03	0.00	0.06	-0.01	0.02
20	525 SIMILARITY		1.00	0.12	0.08	0.10	0.10	0.04	0.04	0.10
21	A301 #RT:SAT WORD			1.00	0.85	0.94	0.45	0.42	0.24	0.38
22	A303 #RT:SAT PGPH				1.00	0.98	0.46	0.43	0.23	0.43
23	A305 #RT:SAT TOTAL					1.00	0.48	0.44	0.24	0.43
24	M305 VOCAB:WISC SC						1.00	0.60	0.41	0.41
25	M306 SIML:WISC SCA							1.00	0.28	0.38
26	M307 P.CM:WISC SCA								1.00	0.40
27	M308 BLKD:WISC SCA									1.00

TABLE A5.2
CORRELATIONS WITHIN CELLS
OF END-OF-THIRD-GRADE SCALES AND END-OF-SECOND-GRADE SCALES
SELECTED SAMPLE

MATRIX FOR CELL A1

(EXCLUDING RATIONALS, SCALE 507)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
501 VOCABULARY	1	1.00	0.54	0.60	0.57	0.25	0.56	0.51	0.47	0.46	0.31	0.14	-0.13	0.03	0.07	0.13	0.55
502 COMPREHENSION	2		1.00	0.55	0.45	0.26	0.58	0.36	0.49	0.44	0.34	0.13	-0.15	-0.18	0.03	0.16	0.49
503 NUMBER CMPARSN	3			1.00	0.48	0.15	0.52	0.47	0.53	0.41	0.43	0.21	-0.07	-0.06	0.14	-0.07	0.50
504 PLACE VALUE	4				1.00	0.19	0.44	0.27	0.39	0.38	0.34	0.06	-0.13	-0.02	-0.05	0.24	0.47
505 NUMBER LINE	5					1.00	0.22	0.12	0.17	0.35	0.09	-0.03	-0.10	0.05	0.12	0.16	0.23
506 APPLICATION	6						1.00	0.32	0.45	0.49	0.29	0.08	-0.13	-0.06	0.06	-0.12	0.44
508 ORDR:PICSET:GP	7							1.00	0.47	0.40	0.34	0.26	-0.15	-0.11	0.06	0.02	0.31
510 COMPUTE:ADD	8								1.00	0.69	0.51	0.05	-0.02	-0.16	0.15	0.04	0.40
511 COMPUTE:SUBT	9									1.00	0.45	0.01	-0.15	-0.13	0.24	0.04	0.38
512 COMPUTE:MULT	10										1.00	0.22	-0.11	-0.11	-0.12	0.02	0.40
521 IDFY POLYGS	11											1.00	-0.44	-0.06	-0.19	0.12	0.34
522 CRVD&OPEN FIGS	12												1.00	-0.04	0.03	-0.10	-0.31
523 IDFY TRIANGS	13													1.00	0.14	-0.10	-0.10
524 CONGRUENCE	14														1.00	-0.28	-0.09
525 SIMILARITY	15															1.00	0.12
A305 #RT:SAT TOTAL	16																1.00

		17	18	19	20	21
501 VOCABULARY	1	0.38	0.19	0.23	0.35	0.42
502 COMPREHENSION	2	0.28	0.11	0.16	0.24	0.29
503 NUMBER CMPARSN	3	0.35	0.28	0.31	0.38	0.48
504 PLACE VALUE	4	0.31	0.13	0.14	0.31	0.32
505 NUMBER LINE	5	0.06	0.03	0.03	0.15	0.10
506 APPLICATION	6	0.16	0.20	0.12	0.19	0.24
508 ORDR:PICSET:GP	7	0.18	0.18	0.25	0.28	0.32
510 COMPUTE:ADD	8	0.29	0.21	0.04	0.37	0.33
511 COMPUTE:SUBT	9	0.26	0.29	0.01	0.31	0.32
512 COMPUTE:MULT	10	0.33	0.38	0.14	0.37	0.45
521 IDFY POLYGS	11	0.03	0.18	0.09	0.19	0.18
522 CRVD&OPEN FIGS	12	-0.01	0.03	-0.13	-0.19	-0.11
523 IDFY TRIANGS	13	0.02	-0.00	0.06	-0.13	-0.02
524 CONGRUENCE	14	0.03	0.04	-0.18	-0.22	-0.11
525 SIMILARITY	15	-0.01	0.09	-0.03	0.25	0.11
A305 #RT:SAT TOTAL	16	0.31	0.13	0.21	0.30	0.34
M305 VOCAB:WISC SC	17	1.00	0.38	0.30	0.36	0.75
M306 SIML:WISC SCA	18		1.00	0.11	0.26	0.65
M307 P.CN:WISC SCA	19			1.00	0.34	0.63
M308 BLKD:WISC SCA	20				1.00	0.70
M311 TOTL:WISC SCA	21					1.00

N = 55 FOR CELL A1

(CONTINUED)

TABLE A5.2
(SECOND PAGE)

MATRIX FOR CELL A1 (EXCLUDING RATIONALS, SCALE 507)(CONTINUED)

		22	23	24	25	26	27	28	29	30	31	32	33
501 VOCABULARY	1	0.56	0.62	0.21	0.63	0.21	0.34	0.51	0.58	0.46	0.48	0.33	0.57
502 COMPREHENSICN	2	0.37	0.55	0.27	0.51	0.29	0.22	0.44	0.42	[illegible]	0.43	0.45	0.52
503 NUMBER CMPARSN	3	0.49	0.58	0.39	0.71	0.29	0.35	0.51	0.59	0.41	0.52	0.39	0.54
504 PLACE VALUE	4	0.41	0.56	0.17	0.55	0.28	0.32	0.42	0.45	0.33	0.46	0.39	0.44
505 NUMBER LINE	5	0.26	0.21	0.28	0.24	0.05	0.09	0.17	0.16	0.15	0.12	0.11	0.09
506 APPLICATION	6	0.32	0.55	0.29	0.34	0.20	0.12	0.45	0.46	0.41	0.51	0.39	0.41
508 ORDR:PICSET:GP	7	0.45	0.41	0.07	0.47	0.16	0.26	0.47	0.36	0.52	0.41	0.25	0.33
510 COMPUTE:ADD	8	0.44	0.55	0.29	0.49	0.31	0.28	0.57	0.50	0.47	0.57	0.45	0.52
511 COMPUTE:SUBT	9	0.38	0.39	0.21	0.45	0.22	0.31	0.40	0.38	0.33	0.43	0.31	0.33
512 COMPUTE:MULT	10	0.12	0.46	0.17	0.28	0.32	0.21	0.25	0.38	0.35	0.34	0.48	0.37
521 IDFY POLYGS	11	0.11	0.23	0.12	0.27	0.14	0.25	0.05	0.19	0.23	0.09	0.21	0.31
522 CRVDCOPEN FIGS	12	-0.19	-0.20	-0.14	-0.21	-0.12	-0.26	-0.07	-0.09	-0.09	-0.09	-0.10	-0.18
523 IDFY TRIANGS	13	0.05	-0.15	0.02	-0.06	-0.03	0.04	-0.03	-0.07	-0.13	-0.10	-0.13	-0.05
524 CONGRUENCE	14	0.04	-0.09	0.24	0.13	0.10	0.07	0.17	-0.08	0.03	0.09	-0.08	-0.05
525 SIMILARITY	15	0.05	0.18	-0.18	-0.03	0.12	0.01	0.08	0.15	0.02	0.13	-0.01	0.08
A305 #RT:SAT TOTAL	16	0.37	0.55	0.26	0.49	0.25	0.44	0.41	0.56	0.47	0.47	0.42	0.81
M305 VOCAB:WISC SC	17	0.39	0.32	0.30	0.36	0.30	0.20	0.27	0.30	0.33	0.27	0.23	0.32
M306 SIML:WISC SCA	18	0.13	0.18	0.21	0.20	0.22	0.06	0.11	0.20	0.05	0.23	0.16	0.09
M307 C.CM:WISC SCA	19	0.19	0.28	0.22	0.29	0.02	0.25	0.20	0.26	0.26	0.23	0.25	0.07
M308 BLKD:WISC SCA	20	0.32	0.46	0.17	0.30	0.12	0.33	0.24	0.40	0.21	0.31	0.24	0.32
M311 TOTL:WISC SCA	21	0.37	0.45	0.33	0.42	0.24	0.30	0.30	0.42	0.31	0.38	0.34	0.29
701 NO. COMP:ORDER	22	1.00	0.44	0.34	0.57	0.23	0.33	0.45	0.47	0.46	0.39	0.29	0.44
702 PLACE VALUE	23		1.00	0.25	0.61	0.30	0.32	0.47	0.64	0.46	0.54	0.47	0.53
703 NUMBER LINE	24			1.00	0.37	0.12	0.15	0.31	0.25	0.31	0.43	0.26	0.31
704 APPLICATION	25				1.00	0.31	0.39	0.60	0.64	0.54	0.63	0.44	0.52
705 RATIONALS	26					1.00	0.18	0.33	0.28	0.31	0.26	0.28	0.32
706 STRUCT OF SPAC	27						1.00	0.39	0.45	0.26	0.33	0.27	0.44
707 COMPUTE:ADD	28							1.00	0.61	0.65	0.77	0.30	0.57
708 COMPUTE:SUBT	29								1.00	0.58	0.70	0.46	0.64
709 COMPUTE:MULT	30									1.00	0.61	0.51	0.55
727 COMPUTATION	31										1.00	0.41	0.58
728 STRUCTURE	32											1.00	0.42
A405 #RT:SAT TOTAL	33												1.00

N = 95 FOR CELL A1

(CONTINUED)

TABLE A5.2
(THIRD PAGE)

CORRELATIONS WITH RATIONALS, SCALE 507

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13
507 RATIONALS	1	1.00	0.21	0.38	0.18	0.41	0.32	0.08	0.29	0.46	0.31	0.39	0.37	0.32
701 NO. COMP:ORDER	2		1.00	0.37	0.50	0.45	0.25	0.32	0.47	0.50	0.47	0.47	0.28	0.43
702 PLACE VALUE	3			1.00	0.34	0.64	0.34	0.41	0.52	0.68	0.50	0.62	0.56	0.58
703 NUMBER LINE	4				1.00	0.42	0.18	0.12	0.39	0.30	0.36	0.46	0.25	0.35
704 APPLICATION	5					1.00	0.38	0.35	0.57	0.66	0.51	0.65	0.43	0.51
705 RATIONALS	6						1.00	0.21	0.38	0.35	0.33	0.32	0.33	0.36
706 STRUCT OF SPAC	7							1.00	0.41	0.45	0.27	0.37	0.23	0.45
707 COMPUTE:ADD	8								1.00	0.59	0.67	0.78	0.31	0.59
708 COMPUTE:SUBT	9									1.00	0.60	0.70	0.51	0.65
709 COMPUTE:MULT	10										1.00	0.64	0.48	0.57
727 COMPUTATION	11											1.00	0.43	0.61
728 STRUCTURE	12												1.00	0.43
A405 #RT:SAT TOTAL	13													1.00

N = 76 FOR CELL A1

(CONTINUED)

TABLE A5.2
(FOURTH PAGE)

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
501 VOCABULARY	1	1.00	0.45	0.58	0.62	0.41	0.50	0.27	0.54	0.36	0.48	0.40	0.03	0.27	0.06	0.04	0.15
502 COMPREHENSION	2		1.00	0.33	0.47	0.33	0.38	0.16	0.45	0.40	0.36	0.40	-0.04	0.10	0.13	0.05	0.16
503 NUMBER CMPARSN	3			1.00	0.44	0.35	0.27	0.21	0.42	0.39	0.40	0.40	0.08	0.29	0.02	0.04	0.13
504 PLACE VALUE	4				1.00	0.42	0.54	0.37	0.41	0.52	0.49	0.55	0.21	0.27	0.13	0.13	0.07
505 NUMBER LINE	5					1.00	0.32	0.22	0.34	0.34	0.35	0.36	0.16	0.06	0.05	-0.03	0.12
506 APPLICATION	6						1.00	0.30	0.32	0.51	0.43	0.38	0.12	0.14	0.03	0.11	0.02
507 RATIONALS	7							1.00	0.13	0.21	0.29	0.29	0.04	0.11	0.14	0.08	0.06
508 ORDR:PICSET:GP	8								1.00	0.36	0.39	0.24	0.06	0.04	-0.05	0.01	0.12
510 COMPUTE:ADD	9									1.00	0.50	0.52	0.02	0.16	0.04	0.04	0.15
511 COMPUTE:SUBT	10										1.00	0.40	-0.00	0.19	-0.13	-0.05	0.18
512 COMPUTE:MULT	11											1.00	0.07	0.18	0.12	0.09	0.14
521 IDFY POLYGS	12												1.00	-0.02	0.06	0.25	-0.11
522 CRVD&OPEN FIGS	13													1.00	0.00	0.08	0.16
523 IDFY TRIANGS	14														1.00	0.23	-0.19
524 CONGRUENCE	15															1.00	-0.06
525 SIMILARITY	16																1.00

		17	18	19	20	21	22
501 VOCABULARY	1	0.55	0.45	0.47	0.23	0.29	0.50
502 COMPREHENSION	2	0.43	0.34	0.39	0.07	0.31	0.39
503 NUMBER CMPARSN	3	0.50	0.21	0.38	0.21	0.35	0.40
504 PLACE VALUE	4	0.56	0.49	0.54	0.30	0.42	0.61
505 NUMBER LINE	5	0.36	0.19	0.21	0.07	0.23	0.25
506 APPLICATION	6	0.41	0.31	0.35	0.03	0.22	0.32
507 RATIONALS	7	0.14	0.34	0.20	0.34	0.29	0.40
508 ORDR:PICSET:GP	8	0.39	0.31	0.24	0.06	0.23	0.29
510 COMPUTE:ADD	9	0.39	0.13	0.25	0.20	0.32	0.31
511 COMPUTE:SUBT	10	0.49	0.22	0.40	0.10	0.21	0.33
512 COMPUTE:MULT	11	0.47	0.18	0.22	0.21	0.44	0.37
521 IDFY POLYGS	12	0.01	0.11	-0.03	0.14	-0.10	0.04
522 CRVD&OPEN FIGS	13	0.21	0.09	0.32	0.01	0.20	0.22
523 IDFY TRIANGS	14	0.01	0.04	0.02	0.18	0.03	0.09
524 CONGRUENCE	15	-0.02	0.11	0.03	0.08	0.13	0.12
525 SIMILARITY	16	0.16	0.15	0.04	-0.04	0.16	0.11
A305 #RT:SAT TOTAL	17	1.00	0.32	0.45	-0.00	0.34	0.39
M305 VOCAB:WISC SC	18		1.00	0.56	0.34	0.23	0.73
M306 SIML:WISC SCA	19			1.00	0.26	0.41	0.79
M307 P.CM:WISC SCA	20				1.00	0.36	0.66
M308 BLKD:WISC SCA	21					1.00	0.70
M311 TOTL:WISC SCA	22						1.00

N = 111 FOR CELL B1

(CONTINUED)

TABLE A5.2
(FIFTH PAGE)

MATRIX FOR CELL B1 (CONTINUED)

		23	24	25	26	27	28	29	30	31	32	33	34
501 VOCABULARY	1	0.33	0.52	0.39	0.50	0.45	0.36	0.31	0.47	0.49	0.44	0.30	0.57
502 COMPREHENSION	2	0.37	0.38	0.25	0.43	0.42	0.39	0.31	0.37	0.34	0.29	0.35	0.44
503 NUMBER CMPARSN	3	0.43	0.33	0.30	0.32	0.30	0.25	0.31	0.32	0.38	0.40	0.43	0.53
504 PLACE VALUE	4	0.39	0.60	0.46	0.67	0.49	0.47	0.42	0.61	0.57	0.54	0.49	0.59
505 NUMBER LINE	5	0.31	0.27	0.29	0.28	0.44	0.17	0.21	0.33	0.27	0.32	0.39	0.36
506 APPLICATION	6	0.27	0.40	0.26	0.50	0.38	0.20	0.38	0.49	0.27	0.50	0.30	0.36
507 RATIONALS	7	0.22	0.30	0.21	0.24	0.49	0.16	0.12	0.39	0.25	0.33	0.27	0.22
508 ORDR:PICSET:GP	8	0.16	0.39	0.25	0.30	0.32	0.14	0.32	0.31	0.26	0.28	0.26	0.37
510 COMPUTE:ADD	9	0.36	0.41	0.27	0.48	0.39	0.31	0.52	0.46	0.38	0.45	0.31	0.42
511 COMPUTE:SUBT	10	0.24	0.43	0.34	0.48	0.31	0.22	0.36	0.47	0.36	0.46	0.35	0.47
512 COMPUTE:MULT	11	0.31	0.44	0.29	0.44	0.33	0.34	0.35	0.43	0.52	0.45	0.48	0.48
521 IDFY POLYGS	12	0.17	-0.08	-0.02	0.19	-0.04	0.02	0.16	0.21	0.04	0.07	0.17	0.03
522 CRVD&OPEN FIGS	13	0.15	0.30	0.19	0.26	0.19	0.20	0.14	0.07	0.13	0.13	0.23	0.29
523 IDFY TRIANGS	14	-0.01	0.09	-0.01	-0.07	0.20	0.10	-0.12	-0.05	0.10	-0.06	0.14	0.01
524 CONGRUENCE	15	0.01	0.14	0.16	0.17	0.09	0.16	-0.11	0.08	0.11	0.06	0.14	0.04
525 SIMILARITY	16	0.13	0.05	0.22	0.14	0.21	0.16	0.13	0.10	0.12	0.12	0.17	0.18
A305 #RT:SAT TOTAL	17	0.34	0.41	0.41	0.46	0.36	0.38	0.31	0.44	0.35	0.48	0.44	0.86
M305 VOCAB:WISC SC	18	0.10	0.31	0.26	0.35	0.41	0.23	0.17	0.38	0.30	0.22	0.16	0.41
M306 SIML:WISC SCA	19	0.22	0.43	0.28	0.37	0.34	0.16	0.20	0.28	0.29	0.33	0.28	0.46
M307 P.CM:WISC SCA	20	0.11	0.22	0.27	0.13	0.28	0.01	0.17	0.24	0.24	0.22	0.16	0.12
M308 BLKD:WISC SCA	21	0.20	0.33	0.35	0.38	0.33	0.29	0.10	0.23	0.40	0.37	0.31	0.43
M311 TOTL:WISC SCA	22	0.22	0.45	0.40	0.43	0.47	0.24	0.22	0.39	0.43	0.40	0.32	0.50
701 NO. COMP:ORDER	23	1.00	0.24	0.31	0.32	0.29	0.26	0.23	0.36	0.18	0.24	0.31	0.32
702 PLACE VALUE	24		1.00	0.28	0.44	0.41	0.39	0.37	0.50	0.62	0.52	0.45	0.52
703 NUMBER LINE	25			1.00	0.43	0.42	0.26	0.21	0.32	0.28	0.37	0.42	0.45
704 APPLICATION	26				1.00	0.39	0.51	0.31	0.56	0.48	0.56	0.31	0.51
705 RATIONALS	27					1.00	0.34	0.30	0.45	0.43	0.45	0.38	0.43
706 STRUCT OF SPAC	28						1.00	0.23	0.28	0.37	0.26	0.17	0.46
707 COMPUTE:ADD	29							1.00	0.57	0.31	0.51	0.28	0.36
708 COMPUTE:SUBT	30								1.00	0.51	0.61	0.43	0.47
709 COMPUTE:MULT	31									1.00	0.55	0.43	0.50
727 COMPUTATION	32										1.00	0.40	0.54
728 STRUCTURE	33											1.00	0.44
A405 #RT:SAT TOTAL	34												1.00

N = 111 FOR CELL B1

(CONTINUED)

TABLE A5.2
(SIXTH PAGE)

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
501 VOCABULARY	1	1.00	0.52	0.63	0.55	0.32	0.57	0.34	0.60	0.61	0.57	0.42	-0.03	-0.03	0.16	0.05	-0.22
502 COMPREHENSION	2		1.00	0.47	0.47	0.19	0.48	0.37	0.45	0.48	0.50	0.43	-0.05	-0.06	0.17	0.05	-0.26
503 NUMBER CMPARSN	3			1.00	0.56	0.37	0.57	0.37	0.45	0.60	0.43	0.34	-0.09	0.03	0.07	-0.05	-0.22
504 PLACE VALUE	4				1.00	0.37	0.54	0.45	0.44	0.54	0.48	0.61	0.02	-0.01	0.14	0.02	-0.31
505 NUMBER LINE	5					1.00	0.29	0.32	0.36	0.33	0.25	0.28	-0.15	-0.05	-0.01	-0.10	-0.01
506 APPLICATION	6						1.00	0.42	0.52	0.58	0.58	0.49	0.10	0.01	0.16	-0.05	-0.25
507 RATIONALS	7							1.00	0.40	0.34	0.33	0.40	-0.09	-0.09	0.06	-0.09	-0.13
508 ORDR:PICSET:GP	8								1.00	0.52	0.51	0.44	0.00	-0.04	0.04	-0.03	-0.14
510 COMPUTE:ADD	9									1.00	0.72	0.54	-0.13	0.08	0.12	-0.13	-0.13
511 COMPUTE:SUBT	10										1.00	0.59	0.01	-0.02	0.11	-0.10	-0.11
512 COMPUTE:MULT	11											1.00	-0.07	0.03	0.09	-0.05	-0.09
521 IDFY POLYGS	12												1.00	-0.35	0.07	0.11	-0.11
522 CRVD&OPEN FIGS	13													1.00	-0.10	-0.02	0.04
523 IDFY TRIANGS	14														1.00	0.25	-0.31
524 CONGRUENCE	15															1.00	-0.36
525 SIMILARITY	16																1.00

		17	18	19	20	21	22
501 VOCABULARY	1	0.56	0.31	0.49	0.15	0.45	0.53
502 COMPREHENSION	2	0.57	0.30	0.44	0.26	0.38	0.51
503 NUMBER CMPARSN	3	0.48	0.35	0.36	0.04	0.33	0.41
504 PLACE VALUE	4	0.52	0.29	0.41	0.23	0.50	0.53
505 NUMBER LINE	5	0.18	0.21	0.17	0.14	0.35	0.33
506 APPLICATION	6	0.54	0.23	0.35	0.11	0.39	0.41
507 RATIONALS	7	0.30	0.08	0.11	0.12	0.31	0.23
508 ORDR:PICSET:GP	8	0.50	0.12	0.42	0.12	0.41	0.40
510 COMPUTE:ADD	9	0.59	0.23	0.42	0.26	0.44	0.50
511 COMPUTE:SUBT	10	0.54	0.14	0.44	0.17	0.37	0.42
512 COMPUTE:MULT	11	0.41	0.09	0.40	0.21	0.45	0.43
521 IDFY POLYGS	12	0.08	0.07	0.18	-0.08	-0.00	0.07
522 CRVD&OPEN FIGS	13	-0.10	0.01	0.04	0.01	0.05	0.04
523 IDFY TRIANGS	14	0.21	0.08	0.11	0.15	0.14	0.18
524 CONGRUENCE	15	-0.10	0.12	0.12	0.06	0.08	0.14
525 SIMILARITY	16	-0.14	-0.03	-0.19	-0.10	-0.18	-0.19
A305 #RT:SAT TOTAL	17	1.00	0.32	0.46	0.15	0.32	0.47
M305 VOCAB:WISC SC	18		1.00	0.47	0.16	0.14	0.67
M306 SIML:WISC SCA	19			1.00	0.16	0.32	0.74
M307 P.CN:WISC SCA	20				1.00	0.36	0.60
M308 BLKD:WISC SCA	21					1.00	0.67
M311 TOTL:WISC SCA	22						1.00

N = 118 FOR CELL C1

(CONTINUED)

TABLE A5.2
(SEVENTH PAGE)

MATRIX FOR CELL C1 (CONTINUED)

		23	24	25	26	27	28	29	30	31	32	33	34
501 VOCABULARY	1	0.51	0.52	0.09	0.47	0.32	0.33	0.50	0.50	0.52	0.56	0.45	0.64
502 COMPREHENSION	2	0.38	0.45	0.13	0.39	0.17	0.29	0.44	0.50	0.47	0.52	0.41	0.55
503 NUMBER CMPARSN	3	0.47	0.45	0.07	0.51	0.33	0.41	0.51	0.57	0.51	0.52	0.45	0.57
504 PLACE VALUE	4	0.37	0.53	0.13	0.42	0.35	0.32	0.40	0.57	0.53	0.53	0.54	0.57
505 NUMBER LINE	5	0.26	0.25	0.16	0.26	0.23	0.28	0.38	0.35	0.27	0.34	0.19	0.36
506 APPLICATION	6	0.54	0.55	0.07	0.50	0.21	0.25	0.44	0.60	0.59	0.56	0.48	0.60
507 RATIONALS	7	0.31	0.44	0.26	0.38	0.24	0.25	0.38	0.49	0.42	0.54	0.43	0.41
508 ORDR:PICSET:GP	8	0.50	0.41	0.15	0.45	0.33	0.30	0.46	0.54	0.55	0.54	0.38	0.58
510 COMPUTE:ADD	9	0.47	0.57	0.10	0.46	0.32	0.29	0.60	0.61	0.65	0.59	0.51	0.65
511 COMPUTE:SUBT	10	0.37	0.51	0.12	0.39	0.22	0.26	0.48	0.59	0.64	0.54	0.36	0.57
512 COMPUTE:MULT	11	0.33	0.55	0.14	0.42	0.35	0.23	0.43	0.60	0.55	0.53	0.43	0.46
521 IDFY POLYGS	12	-0.02	0.02	-0.05	0.06	-0.05	0.01	-0.05	-0.08	0.03	0.07	0.01	0.02
522 CRVD&OPEN FIGS	13	-0.16	0.05	0.02	-0.05	0.04	0.11	-0.15	-0.08	0.03	-0.10	0.01	-0.07
523 IDFY TRIANGS	14	-0.00	0.16	-0.03	0.16	0.07	0.08	0.14	0.11	0.14	0.27	0.25	0.23
524 CONGRUENCE	15	-0.10	0.02	-0.01	0.03	-0.06	0.01	0.30	-0.04	-0.07	0.07	0.03	-0.04
525 SIMILARITY	16	-0.05	-0.13	-0.07	-0.19	-0.07	-0.10	-0.07	-0.16	-0.13	-0.28	-0.15	-0.21
A305 ART:SAT TOTAL	17	0.48	0.55	0.26	0.43	0.19	0.37	0.44	0.50	0.64	0.58	0.57	0.85
H305 VOCAB:WISC SC	18	0.24	0.27	0.01	0.25	0.04	0.19	0.19	0.15	0.15	0.19	0.12	0.32
H306 SIML:WISC SCA	19	0.29	0.48	0.16	0.34	0.16	0.28	0.31	0.31	0.39	0.35	0.27	0.50
H307 P.CM:WISC SCA	20	0.20	0.13	0.22	0.09	0.23	0.05	0.14	0.25	0.25	0.21	0.20	0.21
H308 BLKD:WISC SCA	21	0.27	0.41	0.24	0.26	0.44	0.20	0.41	0.46	0.53	0.51	0.45	0.46
H311 TOTL:WISC SCA	22	0.37	0.48	0.24	0.36	0.32	0.27	0.39	0.44	0.49	0.47	0.39	0.56
701 NO. COMP:ORDER	23	1.00	0.44	0.16	0.37	0.18	0.31	0.45	0.55	0.44	0.49	0.43	0.55
702 PLACE VALUE	24		1.00	0.31	0.66	0.29	0.38	0.47	0.61	0.59	0.57	0.54	0.56
703 NUMBER LINE	25			1.00	0.18	0.16	0.26	0.13	0.19	0.24	0.30	0.27	0.29
704 APPLICATION	26				1.00	0.33	0.39	0.48	0.52	0.57	0.54	0.43	0.50
705 RATIONALS	27					1.00	0.23	0.22	0.35	0.33	0.29	0.22	0.26
706 STRUCT OF SPAC	28						1.00	0.35	0.32	0.39	0.37	0.37	0.46
707 COMPUTE:ADD	29							1.00	0.62	0.65	0.65	0.50	0.59
708 COMPUTE:SUBT	30								1.00	0.67	0.67	0.53	0.60
709 COMPUTE:MULT	31									1.00	0.58	0.58	0.70
727 COMPUTATION	32										1.00	0.69	0.69
728 STRUCTURE	33											1.00	0.65
A305 ART:SAT TOTAL	34												1.00

N = 118 FOR CELL C1

(CONTINUED)

TABLE A5.2
(EIGHTH PAGE)

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
501 VOCABULARY	1	1.00	0.44	0.53	0.50	0.11	0.55	0.43	0.35	0.45	0.55	0.50	-0.13	-0.08	0.28	-0.10	0.16
502 COMPREHENSION	2		1.00	0.44	0.50	0.20	0.46	0.26	0.51	0.37	0.51	0.49	-0.03	-0.02	0.12	-0.11	0.04
503 NUMBER CMPARSN	3			1.00	0.45	0.11	0.44	0.31	0.37	0.64	0.42	0.46	0.00	-0.05	0.17	-0.01	-0.06
504 PLACE VALUE	4				1.00	0.31	0.52	0.08	0.32	0.46	0.49	0.38	0.05	0.17	0.06	-0.23	0.11
505 NUMBER LINE	5					1.00	0.24	-0.03	0.09	0.28	0.25	-0.02	0.04	0.02	0.10	0.09	-0.13
506 APPLICATION	6						1.00	0.33	0.39	0.59	0.62	0.57	-0.09	-0.06	0.18	0.09	-0.06
507 RATIONALS	7							1.00	0.24	0.34	0.26	0.47	-0.04	0.02	0.10	-0.08	0.08
508 ORDR:PICSET:GP	8								1.00	0.35	0.51	0.47	0.07	-0.03	0.11	0.04	0.28
510 COMPUTE:ADD	9									1.00	0.67	0.48	-0.20	-0.06	-0.01	0.10	-0.05
511 COMPUTE:SUBT	10										1.00	0.52	-0.09	-0.06	0.07	-0.02	0.16
512 COMPUTE:MULT	11											1.00	0.07	0.11	0.16	-0.01	0.11
521 IDFY POLYGS	12												1.00	-0.00	0.20	0.05	0.01
522 CRVD&OPEN FIGS	13													1.00	-0.17	-0.03	0.19
523 IDFY TRIANGS	14														1.00	-0.03	-0.19
524 CONGRUENCE	15															1.00	-0.38
525 SIMILARITY	16																1.00

		17	18	19	20	21	22
501 VOCABULARY	1	0.56	0.48	0.60	0.01	0.32	0.53
502 COMPREHENSION	2	0.43	0.33	0.35	0.20	0.32	0.44
503 NUMBER CMPARSN	3	0.36	0.28	0.47	0.11	0.27	0.42
504 PLACE VALUE	4	0.46	0.36	0.44	0.14	0.23	0.43
505 NUMBER LINE	5	0.13	0.00	0.20	0.03	0.06	0.11
506 APPLICATION	6	0.46	0.42	0.56	0.06	0.37	0.52
507 RATIONALS	7	0.33	0.29	0.30	-0.03	0.26	0.31
508 ORDR:PICSET:GP	8	0.26	0.22	0.33	0.03	0.20	0.29
510 COMPUTE:ADD	9	0.42	0.24	0.43	0.16	0.31	0.41
511 COMPUTE:SUBT	10	0.50	0.21	0.54	0.14	0.24	0.41
512 COMPUTE:MULT	11	0.55	0.36	0.47	0.02	0.38	0.46
521 IDFY POLYGS	12	-0.16	-0.16	0.07	-0.09	0.13	-0.03
522 CRVD&OPEN FIGS	13	-0.00	-0.12	-0.18	-0.16	-0.02	-0.17
523 IDFY TRIANGS	14	0.06	0.28	0.45	-0.07	-0.02	0.26
524 CONGRUENCE	15	0.05	-0.05	0.12	-0.06	0.09	0.04
525 SIMILARITY	16	-0.04	0.02	-0.08	0.11	0.09	0.04
A305 #RT:SAT TOTAL	17	1.00	0.46	0.46	0.05	0.17	0.44
M305 VOCAB:WISC SC	18		1.00	0.53	0.35	0.23	0.80
M306 SIML:WISC SCA	19			1.00	0.13	0.24	0.71
M307 P.CM:WISC SCA	20				1.00	0.32	0.62
M308 BLKD:WISC SCA	21					1.00	0.61
M311 TOTL:WISC SCA	22						1.00

N = 60 FOR CELL D1

(CONTINUED)

TABLE A5.2
(NINTH PAGE)

MATRIX FOR CELL D1 (CONTINUED)

		23	24	25	26	27	28	29	30	31	32	33	34
501 VOCABULARY	1	0.42	0.69	0.32	0.58	0.38	0.19	0.46	0.51	0.48	0.62	0.45	0.65
502 COMPREHENSION	2	0.30	0.65	0.23	0.53	0.53	0.20	0.47	0.59	0.46	0.45	0.39	0.49
503 NUMBER CMPARSN	3	0.35	0.53	0.31	0.46	0.41	0.09	0.39	0.50	0.43	0.66	0.35	0.38
504 PLACE VALUE	4	0.36	0.57	0.24	0.58	0.37	0.26	0.48	0.56	0.26	0.52	0.39	0.52
505 NUMBER LINE	5	-0.12	0.15	0.43	0.18	0.02	0.10	0.13	0.11	-0.07	0.14	0.26	0.05
506 APPLICATION	6	0.14	0.61	0.31	0.59	0.55	0.29	0.46	0.50	0.38	0.56	0.52	0.55
507 RATIONALS	7	0.19	0.40	0.19	0.28	0.42	0.27	0.20	0.20	0.28	0.34	0.36	0.37
508 ORDR:PICSET:GP	8	0.35	0.38	0.30	0.36	0.30	0.00	0.22	0.36	0.45	0.40	0.38	0.32
510 COMPUTE:ADD	9	0.15	0.51	0.27	0.44	0.42	0.23	0.37	0.61	0.41	0.56	0.41	0.37
511 COMPUTE:SUBT	10	0.19	0.54	0.28	0.50	0.38	0.19	0.44	0.69	0.58	0.64	0.56	0.46
512 COMPUTE:MULT	11	0.42	0.52	0.27	0.41	0.65	0.19	0.26	0.47	0.35	0.48	0.51	0.57
521 IDFY POLYGS	12	0.19	-0.09	0.12	-0.07	-0.18	-0.08	-0.24	-0.19	-0.03	-0.03	0.06	-0.08
522 CRVD&OPEN FIGS	13	0.02	-0.04	-0.04	0.11	0.14	0.10	-0.02	0.04	-0.12	0.10	0.07	-0.03
523 IDFY TRIANGS	14	0.23	0.17	0.19	0.16	0.14	0.08	-0.19	-0.11	0.13	0.08	0.27	0.21
524 CONGRUENCE	15	0.08	-0.15	0.02	0.02	-0.06	0.20	-0.07	-0.18	-0.02	-0.05	0.03	-0.06
525 SIMILARITY	16	0.09	-0.03	0.07	0.14	0.06	-0.10	0.00	0.16	-0.03	0.11	0.12	0.14
A305 #RT:SAT TOTAL	17	0.06	0.48	0.32	0.50	0.53	0.45	0.37	0.55	0.34	0.47	0.35	0.79
M305 VOCAB:WISC SC	18	0.31	0.44	0.22	0.41	0.38	0.36	0.23	0.28	0.16	0.31	0.32	0.58
M306 SIML:WISC SCA	19	0.38	0.52	0.29	0.48	0.43	0.09	0.15	0.39	0.27	0.49	0.41	0.55
M307 P.CM:WISC SCA	20	0.01	0.10	0.04	0.02	0.04	0.04	0.15	0.13	0.01	0.18	0.07	0.17
M308 BLKD:WISC SCA	21	0.23	0.35	0.22	0.40	0.29	0.13	0.26	0.39	0.17	0.35	0.40	0.23
M311 TOTL:WISC SCA	22	0.35	0.52	0.29	0.49	0.43	0.24	0.29	0.43	0.23	0.48	0.44	0.58
701 NO. COMP:ORDER	23	1.00	0.29	0.22	0.34	0.24	0.03	0.17	0.17	0.15	0.37	0.26	0.22
702 PLACE VALUE	24		1.00	0.32	0.58	0.61	0.21	0.53	0.50	0.51	0.59	0.50	0.58
703 NUMBER LINE	25			1.00	0.33	0.21	0.06	0.14	0.13	0.02	0.39	0.36	0.31
704 APPLICATION	26				1.00	0.57	0.38	0.58	0.55	0.35	0.58	0.52	0.55
705 RATIONALS	27					1.00	0.41	0.33	0.42	0.29	0.47	0.52	0.57
706 STRUCT OF SPAC	28						1.00	0.24	0.23	0.12	0.12	0.32	0.39
707 COMPUTE:ADD	29							1.00	0.59	0.51	0.62	0.33	0.33
708 COMPUTE:SUBT	30								1.00	0.51	0.67	0.41	0.42
709 COMPUTE:MULT	31									1.00	0.56	0.53	0.31
727 COMPUTATION	32										1.00	0.54	0.48
728 STRUCTURE	33											1.00	0.41
A405 #RT:SAT TOTAL	34												1.00

N = 60 FOR CELL D1

Table A5.3
Regression Weights by Cell
for End-of-Third-Grade Scales
Using End-of-Second-Grade Scales as Covariates
Selected Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 701 NUMBER COMPARISON: ORDER

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
502	COMPREHENSION	0.087	0.159	0.118	0.043	0.115	0.117
503	NUMBER CMPARSN	0.293	0.414	0.252	0.135	0.288	0.278
504	PLACE VALUE	0.258	0.195	0.092	0.350	0.188	0.192
508	ORDR:PICSET:GP	0.247	-0.085	0.268	0.210	0.155	0.165

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
502	COMPREHENSION	0.082	0.149	0.111	0.041	0.108	0.110
503	NUMBER CMPARSN	0.267	0.377	0.230	0.123	0.263	0.253
504	PLACE VALUE	0.208	0.158	0.074	0.282	0.152	0.155
508	ORDR:PICSET:GP	0.365	-0.126	0.396	0.310	0.229	0.244
	RSQ	0.396	0.322	0.301	0.258	0.304	0.381
	R	0.629	0.567	0.549	0.508	0.551	0.617
	F	19.012	13.984	13.792	5.660	47.635	67.055
	P	0.000	0.000	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 702 PLACE VALUE

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501	VOCABULARY	0.171	0.248	0.100	0.380	0.195	0.207
504	PLACE VALUE	0.219	0.304	0.163	0.253	0.226	0.248
510	COMPUTE:ADD	0.161	0.180	0.252	0.232	0.203	0.212
A305	#RT:SAT TOTAL	0.177	0.064	0.207	0.054	0.140	0.155
M308	BLKD:WISC SCA	0.213	0.048	0.085	0.091	0.091	0.112

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501	VOCABULARY	0.113	0.165	0.066	0.252	0.130	0.137
504	PLACE VALUE	0.226	0.314	0.169	0.261	0.233	0.256
510	COMPUTE:ADD	0.174	0.194	0.272	0.250	0.219	0.228
A305	#RT:SAT TOTAL	0.021	0.007	0.024	0.006	0.016	0.018
M308	BLKD:WISC SCA	0.163	0.036	0.065	0.070	0.070	0.086
	RSQ	0.523	0.413	0.436	0.580	0.460	0.580
	R	0.726	0.643	0.660	0.762	0.678	0.762
	F	23.015	15.646	18.673	16.326	70.053	113.942
	P	0.000	0.000	0.000	0.000	0.000	0.0

(continued)

Table A5.3
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 703 NUMBER LINE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
505 NUMBER LINE	0.172	0.213	0.095	0.336	0.185	0.217
A305 #RT:SAT TOTAL	0.194	0.291	0.256	0.320	0.262	0.278
M308 BLKD:WISC SCA	0.069	0.216	0.131	0.212	0.150	0.165

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
505 NUMBER LINE	0.157	0.194	0.086	0.306	0.168	0.197
A305 #RT:SAT TOTAL	0.013	0.019	0.017	0.021	0.017	0.018
M308 BLKD:WISC SCA	0.030	0.094	0.057	0.092	0.065	0.072
RSQ	0.108	0.232	0.133	0.284	0.173	0.257
R	0.328	0.482	0.364	0.533	0.415	0.507
F	4.271	11.478	6.323	8.327	29.142	48.383
P	0.007	0.000	0.001	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 704 APPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
502 COMPREHENSION	0.025	0.165	0.101	0.227	0.118	0.117
503 NUMBER CMPARSN	0.393	0.110	0.264	0.175	0.243	0.254
504 PLACE VALUE	0.264	0.476	0.072	0.287	0.259	0.261
506 APPLICATION	0.211	0.165	0.251	0.306	0.239	0.235

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
502 COMPREHENSION	0.028	0.186	0.113	0.256	0.133	0.132
503 NUMBER CMPARSN	0.428	0.120	0.288	0.191	0.265	0.278
504 PLACE VALUE	0.255	0.460	0.069	0.277	0.250	0.252
506 APPLICATION	0.242	0.189	0.288	0.351	0.274	0.269
RSQ	0.499	0.503	0.372	0.521	0.441	0.524
R	0.706	0.709	0.610	0.722	0.664	0.724
F	27.390	29.844	15.961	17.646	86.068	119.865
P	0.000	0.000	0.000	0.000	0.000	0.0

(continued)

Table A5.3
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 705 RATIONALS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
507 RATIONALS	0.172	0.346	0.123	0.074	0.207	0.206
510 COMPUTE:ADD	0.144	0.384	0.216	0.155	0.182	0.190
512 COMPUTE:MULT	0.159	0.071	0.166	0.474	0.222	0.246
M305 VOCAB:WISC SC	0.160	0.232	-0.018	0.137	0.131	0.160

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
507 RATIONALS	0.196	0.394	0.140	0.084	0.235	0.234
510 COMPUTE:ADD	0.128	0.343	0.193	0.138	0.162	0.170
512 COMPUTE:MULT	0.114	0.051	0.119	0.341	0.160	0.177
M305 VOCAB:WISC SC	0.086	0.125	-0.009	0.074	0.070	0.086
RSQ	0.229	0.384	0.169	0.456	0.268	0.374
R	0.479	0.619	0.411	0.675	0.517	0.612
F	5.729	17.744	6.438	12.974	36.086	59.120
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 706 STRUCTURE OF SPACE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
503 NUMBER CMPARSN	0.115	0.047	0.284	-0.105	0.120	0.154
504 PLACE VALUE	0.074	0.399	0.052	0.282	0.186	0.202
A305 #RT:SAT TOTAL	0.326	0.181	0.241	0.385	0.272	0.274

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
503 NUMBER CMPARSN	0.096	0.039	0.236	-0.087	0.100	0.128
504 PLACE VALUE	0.054	0.295	0.038	0.208	0.138	0.149
A305 #RT:SAT TOTAL	0.027	0.015	0.020	0.032	0.023	0.023
RSQ	0.231	0.269	0.218	0.209	0.214	0.300
R	0.480	0.518	0.467	0.457	0.462	0.548
F	10.584	14.456	11.635	5.632	38.466	60.701
P	0.000	0.000	0.000	0.002	0.000	0.000

(continued)

Table A5.3
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 707 COMPUTATION: ADDITION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.194	0.002	0.100	0.303	0.154	0.181
508 ORDR:PICSET:GP	0.208	0.100	0.199	0.093	0.149	0.150
510 COMPUTE:ADD	0.348	0.508	0.425	0.145	0.379	0.357
A305 #RT:SAT TOTAL	0.169	0.122	0.063	0.073	0.103	0.129

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.139	0.002	0.072	0.217	0.110	0.130
508 ORDR:PICSET:GP	0.420	0.202	0.402	0.188	0.301	0.302
510 COMPUTE:ADD	0.406	0.593	0.495	0.169	0.442	0.417
A305 #RT:SAT TOTAL	0.021	0.015	0.008	0.009	0.013	0.016
RSQ	0.464	0.349	0.398	0.256	0.378	0.464
R	0.681	0.591	0.631	0.505	0.615	0.681
F	22.499	15.558	20.332	5.242	63.747	90.644
P	0.000	0.000	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 708 COMPUTATION: SUBTRACTION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.250	0.077	0.022	0.107	0.112	0.144
504 PLACE VALUE	0.068	0.335	0.214	0.238	0.208	0.223
506 APPLICATION	0.053	0.118	0.269	0.087	0.143	0.141
510 COMPUTE:ADD	0.222	0.250	0.249	0.270	0.234	0.199
A305 #RT:SAT TOTAL	0.311	0.103	0.045	0.180	0.166	0.196

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.175	0.054	0.015	0.075	0.079	0.101
504 PLACE VALUE	0.074	0.362	0.231	0.257	0.225	0.241
506 APPLICATION	0.068	0.152	0.346	0.112	0.184	0.181
510 COMPUTE:ADD	0.253	0.285	0.283	0.308	0.267	0.227
A305 #RT:SAT TOTAL	0.038	0.013	0.006	0.022	0.020	0.024
RSQ	0.508	0.430	0.494	0.524	0.465	0.559
R	0.713	0.656	0.703	0.724	0.682	0.748
F	23.270	17.380	23.844	13.195	72.644	106.048
P	0.000	0.000	0.000	0.000	0.000	0.0

(continued)

Table A5.3
(fifth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 709 COMPUTATION: MULTIPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
508 ORDR:PICSET:GP	0.341	0.056	0.190	0.224	0.198	0.210
510 COMPUTE:ADD	0.170	0.123	0.261	0.223	0.252	0.279
512 COMPUTE:MULT	0.127	0.271	0.270	0.038	0.159	0.190
A305 #RT:SAT TOTAL	0.292	0.116	0.387	0.126	0.227	0.236

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
508 ORDR:PICSET:GP	0.719	0.117	0.400	0.471	0.418	0.443
510 COMPUTE:ADD	0.207	0.149	0.317	0.271	0.307	0.339
512 COMPUTE:MULT	0.129	0.275	0.274	0.039	0.161	0.192
A305 #RT:SAT TOTAL	0.038	0.015	0.051	0.017	0.030	0.031
RSQ	0.412	0.355	0.583	0.360	0.424	0.549
R	0.642	0.596	0.763	0.600	0.651	0.741
F	18.240	15.945	42.923	8.567	76.953	127.502
P	0.000	0.000	0.000	0.000	0.000	0.0

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DEPENDENT VARIABLE -- 727 COMPUTATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
503 NUMBER CMPARSN	0.215	0.229	0.189	0.510	0.241	0.255
506 APPLICATION	0.218	0.273	0.193	0.125	0.222	0.224
511 COMPUTE:SUBT	0.159	0.192	0.176	0.389	0.200	0.225
A305 #RT:SAT TOTAL	0.194	0.149	0.329	0.103	0.196	0.202

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
503 NUMBER CMPARSN	0.395	0.420	0.347	0.936	0.443	0.467
506 APPLICATION	0.413	0.516	0.364	0.235	0.419	0.423
511 COMPUTE:SUBT	0.263	0.319	0.292	0.645	0.331	0.374
A305 #RT:SAT TOTAL	0.034	0.027	0.060	0.019	0.036	0.037
RSQ	0.406	0.410	0.480	0.620	0.451	0.559
R	0.637	0.640	0.693	0.788	0.672	0.746
F	15.914	19.459	26.803	23.677	81.048	123.541
P	0.000	0.000	0.000	0.000	0.000	0.0

(continued)

Table A5.3
(sixth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 728 STRUCTURE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
5C6 APPLICATION	0.129	0.069	0.130	0.253	0.147	0.175
512 COMPUTE:MULT	0.319	0.291	0.129	0.234	0.236	0.300
A305 ART:SAT TOTAL	0.125	0.254	0.418	0.087	0.233	0.233
M3C8 BLKD:WISC SCA	0.021	0.043	0.213	0.213	0.122	0.154

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
5C6 APPLICATION	0.150	0.080	0.151	0.293	0.170	0.203
512 COMPUTE:MULT	0.273	0.241	0.110	0.201	0.202	0.257
A305 ART:SAT TOTAL	0.014	0.028	0.047	0.010	0.026	0.026
M3C8 BLKD:WISC SCA	0.015	0.031	0.155	0.155	0.089	0.112
RSQ	0.315	0.316	0.428	0.382	0.342	0.481
R	0.561	0.563	0.655	0.618	0.585	0.694
F	10.699	12.503	21.545	8.811	50.489	89.989
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A5.3
(seventh page)

C. SAT Scale

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DEPENDENT VARIABLE -- A405 SAT-2 TOTAL READING NUMBER RIGHT

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
5C1 VOCABULARY	0.183	0.157	0.216	0.190	0.202	0.215
A305 #RT:SAT TOTAL	0.815	0.642	0.774	0.602	0.709	0.724

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
5C1 VOCABULARY	1.119	0.962	1.319	1.160	1.234	1.316
A305 #RT:SAT TOTAL	0.969	0.685	0.826	0.642	0.757	0.772
RSQ	0.673	0.776	0.751	0.668	0.713	0.773
R	0.821	0.881	0.867	0.818	0.844	0.879
F	104.127	204.646	187.020	64.502	516.131	707.075
P	0.000	0.000	0.000	0.000	0.0	0.0

Table A6.1A

Cell Means and Standard Deviations
of Beginning-of-Kindergarten Scales
Longitudinal Sample

K-01 Scales	SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
	MN	SD	MN	SD	MN	SD	MN	SD
001	3.89	0.45	3.84	0.56	3.72	0.73	3.96	0.30
002	2.02	1.25	1.64	0.99	1.30	1.19	1.70	1.10
003	2.66	1.30	2.71	1.18	1.91	1.28	2.84	1.07
004	3.95	2.49	5.40	1.97	3.40	2.68	5.58	1.90
005	0.82	1.64	1.53	2.38	0.83	1.82	1.07	1.91
006	3.15	2.75	5.21	2.56	2.98	2.87	4.89	2.73
007	3.71	2.99	5.61	2.92	3.42	2.91	5.71	2.40
008	3.53	1.26	3.57	1.21	3.36	1.17	3.09	1.08
010	14.31	2.66	15.79	2.76	13.98	3.51	15.91	2.45
012	2.86	2.19	3.87	1.87	2.45	2.17	4.44	1.77
013	3.19	1.52	4.14	1.50	3.18	1.61	4.53	1.98
014	0.61	0.74	1.12	0.90	0.66	0.84	1.02	0.94
015	3.86	1.84	4.84	1.89	3.98	2.09	5.16	1.69
016	1.56	1.50	1.82	1.83	1.25	1.22	2.16	2.16
017	1.26	1.14	1.34	1.05	0.92	0.96	1.13	1.14
019	5.81	0.58	5.93	0.33	5.93	0.32	5.89	0.44
020	5.81	1.68	6.48	1.20	5.23	2.20	6.53	1.12
021	5.24	1.37	5.72	0.99	4.66	2.01	5.76	0.71
022	3.67	0.55	3.75	0.49	3.56	0.64	3.84	0.48
023	1.43	0.73	1.70	1.01	1.53	0.80	1.53	0.89
(Sample Sizes)	(N = 99)		(N = 92)		(N = 103)		(N = 45)	

Note: Fourteen students in Cell D1 were omitted from this analysis.

Table A6.1B

Analyses of Variance
Comparing Text and Socio-economic Effects
for Beginning-of-Kindergarten Scales
Longitudinal Sample

K-01 Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
001	2.03	0.16	4.94*	4.59*	1.33	0.40	5.51*
002	0.01	6.17*	8.30*	19.05*	0.06	4.94*	3.63
003	11.96*	4.77*	9.61*	18.57*	0.34	0.08	17.87*
004	45.10*	0.48	1.81	2.78	0.17	18.20*	26.91*
005	4.53*	1.04	1.11	0.00	1.72	6.38*	0.48
006	39.75*	0.60	0.05	0.20	0.41	26.96*	15.27*
007	40.25*	0.08	0.35	0.51	0.04	20.86*	19.93*
008	0.72	5.37*	1.30	0.93	4.79*	0.05	1.63
010	25.37*	0.10	0.44	0.64	0.05	12.06*	13.46*
012	40.86*	0.12	4.40*	2.05	2.38	11.64*	29.85*
013	38.39*	1.08	1.16	0.00	1.79	16.53*	21.91*
014	20.45*	0.05	0.61	0.21	0.40	17.74*	5.79*
015	25.88*	0.64	0.42	0.02	0.84	12.45*	13.61*
016	9.59*	0.01	3.02	1.82	1.33	1.16	9.70*
017	1.50	4.91*	0.25	4.92*	1.18	0.33	1.23
019	0.71	0.62	2.95	4.20*	0.34	4.14*	0.32
020	25.70*	1.77	2.61	5.78*	0.03	7.51*	18.54*
021	22.05*	2.65	3.44	8.09*	0.02	5.09*	17.77*
022	8.06*	0.00	2.48	1.77	0.93	1.00	8.08*
023	1.86	0.13	1.88	0.69	1.19	4.69*	0.00

$325 \leq N \leq 339$

*$p \leq .05$

Note: Fourteen students in Cell D1 were omitted from this analysis.

Table A6.2A

Cell Means and Standard Deviations
of WPPSI Scales
Longitudinal Sample

WPPSI Scales	SMSG Low S.E. A1		SMSG Middle S.E. B1		State Low S.E. C1		State Middle S.E. D1	
	MN	SD	MN	SD	MN	SD	MN	SD
M112	8.70	2.50	11.04	2.77	8.97	2.56	10.91	2.50
M114	9.80	2.85	10.39	2.67	9.79	2.68	11.57	2.61
M117	9.12	2.66	10.55	2.62	9.20	2.48	11.23	2.37
M120	9.65	2.60	11.20	2.52	10.17	2.49	11.27	2.24
M123	37.28	7.93	43.19	6.86	38.13	6.29	44.98	5.43
(Sample Sizes)	(N = 98)		(N = 89)		(N = 100)		(N = 44)	

Note: Fourteen students in Cell D1 were omitted from this analysis.

Table A6.2B

Analyses of Variance
Comparing Text and Socio-economic Effects
for WPPSI Scales
Longitudinal Sample

WPPSI Scales	F-Values						
	Overall Effects			Pairwise Comparisons			
	S.E.	Text	S.E.-Text Interaction	Text within Low A1:C1	Text within Middle B1:D1	S.E. within SMSG A1:B1	S.E. within State C1:D1
M112	50.38*	0.05	0.44	0.52	0.08	38.08*	17.12*
M114	14.09*	3.41	3.48	0.00	5.50	2.25	13.06*
M117	33.61*	1.60	1.01	0.05	2.06	14.51*	19.15*
M120	20.78*	1.02	0.59	2.12	0.02	17.91*	5.95*
M123	63.68*	2.73	0.34	0.77	1.99	34.56*	30.34*

N = 331

*$p \leq .05$

Note: Fourteen students in Cell D1 were omitted from this analysis.

Table A6.3

Percentages of Correct Responses within Cells
and Chi Square Tests for Text Differences within Socio-economic Groups
for Items of the Structure Scale (728)
Longitudinal Sample

Form 3-04 Item Number	Percentage Correct				Text Comparisons			
	SMSG Low S.E. A1	SMSG Mid. S.E. B1	State Low S.E. C1	State Mid. S.E. D1	Within Low S.E. A1 vs. C1		Within Middle S.E. B1 vs. D1	
					χ^2	p	χ^2	p
55	2.2	6.0	25.0	15.3	0.9	.35	1.5	.22
56	35.2	61.0	91.3	81.4	11.7	.00*	2.4	.12
57	16.5	38.0	55.4	59.3	10.0	.00*	0.1	.76
58	19.8	46.0	78.3	71.2	13.5	.00*	0.6	.43
59	1.1	7.0	15.2	15.3	2.8	.09	0.0	.82
60	18.7	42.0	66.3	67.8	11.1	.00*	0.0	.99
61	6.6	16.0	29.3	27.1	3.3	.07	0.0	.91
62	0.0	4.0	7.6	15.3	2.0	.15	1.5	.22
(Sample Sizes)	(N=91)	(N=92)	(N=100)	(N=59)				

*$p \leq .05$

TABLE A7.1
CORRELATIONS WITHIN CELLS
OF END-OF-KINDERGARTEN COMMON SCALES AND BEGINNING-OF-KINDERGARTEN SCALES
LONGITUDINAL SAMPLE

MATHEMATICS SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.18	0.06	0.08	0.09	-0.10	0.13	0.04	-0.02	0.09	0.40	0.14	0.18	0.25	0.25
004 COUNT BUTTONS	2		1.00	0.46	0.59	0.58	-0.06	0.54	0.43	0.56	0.27	0.45	0.55	0.23	0.44	0.45
005 WRITE NUMERALS	3			1.00	0.31	0.49	-0.03	0.37	0.27	0.48	0.24	0.30	0.58	0.17	0.23	0.22
006 COUNT MEMS:PC	4				1.00	0.38	0.05	0.46	0.48	0.24	0.17	0.34	0.34	0.05	0.27	0.39
007 IDFY NUMERALS	5					1.00	-0.06	0.43	0.47	0.37	0.21	0.35	0.51	0.10	0.31	0.33
008 VIS MEMRY:OBJS	6						1.00	0.04	0.01	-0.02	0.14	-0.17	-0.15	-0.10	0.03	0.07
010 VOCABULARY	7							1.00	0.33	0.42	0.17	0.53	0.36	0.23	0.39	0.44
012 EQIV SETS:DOTS	8								1.00	0.28	0.22	0.35	0.35	0.10	0.25	0.26
013 ORDINAL NUMBER	9									1.00	0.34	0.46	0.43	0.26	0.27	0.25
014 ORDRG:GEO SHAP	10										1.00	0.26	0.28	0.16	0.14	0.17
015 CLASSIFYING	11											1.00	0.48	0.27	0.36	0.37
016 ROTE COUNTING	12												1.00	0.14	0.23	0.27
017 VIS MEMRY:PICT	13													1.00	0.24	0.13
020 COLOR:NAMING	14														1.00	0.77
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21	22
003 GEO SHAP:IDFY	1	0.04	-0.04	-0.12	-0.11	-0.02	0.11	0.08
004 COUNT BUTTONS	2	0.20	0.43	0.37	0.38	0.35	0.35	0.51
005 WRITE NUMERALS	3	0.24	0.24	0.19	0.21	0.12	0.08	0.15
006 COUNT MEMS:PC	4	0.21	0.19	0.10	0.31	0.33	0.26	0.23
007 IDFY NUMERALS	5	0.04	0.28	0.33	0.44	0.42	0.11	0.36
008 VIS MEMRY:OBJS	6	0.06	0.00	-0.01	-0.02	-0.00	-0.11	0.11
010 VOCABULARY	7	0.20	0.11	0.15	0.20	0.16	0.28	0.31
012 EQIV SETS:DOTS	8	0.15	0.32	0.26	0.41	0.40	0.16	0.43
013 ORDINAL NUMBER	9	0.15	0.38	0.41	0.28	0.25	0.23	0.35
014 ORDRG:GEO SHAP	10	0.23	0.18	0.17	0.13	0.15	0.17	0.40
015 CLASSIFYING	11	0.14	0.17	0.05	0.16	0.16	0.25	0.36
016 ROTE COUNTING	12	0.12	0.28	0.26	0.24	0.27	0.20	0.38
017 VIS MEMRY:PICT	13	0.15	0.03	0.10	0.13	0.11	0.25	0.19
020 COLOR:NAMING	14	0.20	0.00	-0.01	0.07	-0.02	0.21	0.18
021 COLOR:IDFYING	15	0.23	0.08	0.17	0.11	0.10	0.12	0.20
104 GEO SHAP:IDFY-	16	1.00	-0.01	0.04	0.09	0.09	0.09	0.14
110 COUNT MEMS:PC	17		1.00	0.58	0.45	0.40	0.24	0.34
111 CNT MEMS:OBJS	18			1.00	0.56	0.50	0.10	0.39
118 EQIV SETS:OBJS	19				1.00	0.77	0.17	0.40
119 EQIV SETS:DOTS	20					1.00	0.22	0.41
130 CLASFY(OVRLAP)	21						1.00	0.23
147 ORDRG:COMPOS	22							1.00

N = 94 FOR CELL A1

(CONTINUED)

TABLE A7.1
(SECOND PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.27	0.07	0.24	0.21	0.06	0.33	0.26	0.05	0.12	0.37	-0.03	0.11	0.18	0.10
004 COUNT BUTTONS	2		1.00	0.31	0.67	0.56	-0.14	0.40	0.35	0.24	0.27	0.33	0.42	0.19	0.34	0.30
005 WRITE NUMERALS	3			1.00	0.35	0.42	0.02	0.29	0.20	0.12	0.30	0.26	0.19	0.07	0.14	0.18
006 COUNT MEMS:PC	4				1.00	0.46	0.02	0.33	0.32	0.15	0.34	0.34	0.29	0.15	0.21	0.24
007 IDFY NUMERALS	5					1.00	-0.09	0.37	0.34	0.30	0.32	0.25	0.38	0.08	0.22	0.29
008 VIS MEMRY:OBJS	6						1.00	0.06	0.02	0.12	0.04	0.23	-0.06	0.29	0.04	0.03
010 VOCABULARY	7							1.00	0.32	0.34	0.41	0.28	0.28	0.06	0.26	0.26
012 EQIV SETS:DOTS	8								1.00	0.14	0.25	0.43	0.23	0.25	0.22	0.13
013 ORDINAL NUMBER	9									1.00	0.37	0.30	0.45	-0.05	0.20	0.09
014 ORDRG:GEO SHAP	10										1.00	0.32	0.29	0.26	0.16	0.16
015 CLASSIFYING	11											1.00	0.19	0.32	0.35	0.21
016 ROTE COUNTING	12												1.00	0.09	0.18	0.18
017 VIS MEMRY:PICT	13													1.00	0.19	0.10
020 COLOR:NAMING	14														1.00	0.64
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21	22
003 GEO SHAP:IDFY	1	0.18	0.12	0.12	0.14	0.20	0.18	0.24
004 COUNT BUTTONS	2	0.14	0.32	0.11	0.43	0.33	0.21	0.23
005 WRITE NUMERALS	3	0.08	0.24	0.31	0.26	0.22	0.14	0.21
006 COUNT MEMS:PC	4	0.14	0.36	0.22	0.38	0.42	0.15	0.37
007 IDFY NUMERALS	5	0.16	0.11	0.05	0.16	-0.01	0.09	0.15
008 VIS MEMRY:OBJS	6	0.06	-0.02	0.07	-0.07	0.08	0.07	0.11
010 VOCABULARY	7	0.22	0.06	0.11	0.16	0.10	0.23	0.17
012 EQIV SETS:DOTS	8	0.26	0.23	0.01	0.12	0.25	0.21	0.21
013 ORDINAL NUMBER	9	0.16	0.13	0.19	0.05	0.16	0.19	0.17
014 ORDRG:GEO SHAP	10	0.16	0.12	0.20	0.23	0.16	0.12	0.23
015 CLASSIFYING	11	0.25	0.23	0.13	0.21	0.31	0.32	0.32
016 ROTE COUNTING	12	0.11	-0.00	0.08	0.24	0.19	0.08	0.17
017 VIS MEMRY:PICT	13	0.02	0.14	0.02	0.05	0.13	0.07	0.21
020 COLOR:NAMING	14	0.23	0.23	0.04	0.32	0.25	0.26	0.06
021 COLOR:IDFYING	15	0.25	0.17	0.08	0.50	0.09	-0.01	-0.04
104 GEO SHAP:IDFY-	16	1.00	0.21	0.18	0.14	0.15	-0.07	-0.12
110 COUNT MEMS:PC	17		1.00	0.58	0.30	0.37	0.23	0.28
111 CNT MEMS:OBJS	18			1.00	0.34	0.31	0.11	0.17
118 EQIV SETS:CBJS	19				1.00	0.32	0.05	0.10
119 EQIV SETS:DOTS	20					1.00	0.27	0.18
130 CLASFY(OVRLAP)	21						1.00	0.36
147 ORDRG:CCMPOS	22							1.00

N = 88 FOR CELL B1

(CONTINUED)

TABLE A7.1
(THIRD PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.11	0.08	0.18	0.16	0.04	0.33	0.10	0.21	-0.03	0.27	0.21	0.06	0.19	0.18
004 COUNT BUTTONS	2		1.00	0.44	0.68	0.62	0.01	0.28	0.49	0.56	0.25	0.51	0.44	0.15	0.42	0.45
005 WRITE NUMERALS	3			1.00	0.48	0.56	0.17	0.24	0.20	0.43	0.25	0.37	0.41	0.04	0.33	0.31
006 COUNT MEMS:PC	4				1.00	0.51	0.02	0.25	0.47	0.38	0.13	0.46	0.42	0.20	0.46	0.45
007 IDFY NUMERALS	5					1.00	-0.05	0.22	0.36	0.47	0.25	0.49	0.46	0.13	0.29	0.35
008 VIS MEMRY:OBJS	6						1.00	0.14	-0.03	0.14	0.14	0.16	0.04	0.02	0.04	0.04
010 VOCABULARY	7							1.00	0.08	0.50	0.09	0.42	0.33	0.22	0.22	0.35
012 EQIV SETS:DOTS	8								1.00	0.30	0.19	0.32	0.20	0.25	0.20	0.17
013 ORDINAL NUMBER	9									1.00	0.34	0.42	0.43	0.05	0.24	0.27
014 ORDRG:GEO SHAP	10										1.00	0.30	0.11	-0.18	0.12	0.15
015 CLASSIFYING	11											1.00	0.34	0.11	0.37	0.43
016 ROTE COUNTING	12												1.00	0.15	0.39	0.37
017 VIS MEMRY:PICT	13													1.00	0.07	0.10
020 COLOR:NAMING	14														1.00	0.88
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21	22
003 GEO SHAP:IDFY	1	0.28	0.12	0.08	0.04	-0.01	0.09	0.08
004 COUNT BUTTONS	2	0.11	0.47	0.35	0.28	0.48	0.36	0.56
005 WRITE NUMERALS	3	0.04	0.28	0.18	0.18	0.21	0.33	0.41
006 COUNT MEMS:PC	4	0.05	0.40	0.37	0.18	0.31	0.30	0.49
007 IDFY NUMERALS	5	0.09	0.32	0.31	0.25	0.31	0.28	0.40
008 VIS MEMRY:OBJS	6	-0.01	0.01	-0.02	-0.07	-0.03	0.13	0.16
010 VOCABULARY	7	0.31	0.20	0.12	0.16	0.25	0.34	0.25
012 EQIV SETS:DOTS	8	0.12	0.35	0.35	0.22	0.30	0.29	0.40
013 ORDINAL NUMBER	9	0.10	0.24	0.17	0.14	0.27	0.31	0.44
014 ORDRG:GEO SHAP	10	0.11	0.17	0.12	0.06	0.16	0.14	0.28
015 CLASSIFYING	11	0.11	0.28	0.24	0.24	0.30	0.40	0.41
016 ROTE COUNTING	12	0.15	0.32	0.36	0.21	0.34	0.24	0.36
017 VIS MEMRY:PICT	13	0.04	0.10	0.03	0.06	0.25	0.22	0.15
020 COLOR:NAMING	14	0.08	0.26	0.14	0.02	0.12	0.29	0.32
021 COLOR:IDFYING	15	0.13	0.32	0.21	0.08	0.25	0.34	0.34
104 GEO SHAP:IDFY-	16	1.00	0.26	0.13	0.20	0.07	0.16	0.13
110 COUNT MEMS:PC	17		1.00	0.61	0.46	0.45	0.22	0.24
111 CNT MEMS:OBJS	18			1.00	0.46	0.51	0.23	0.27
118 EQIV SETS:OBJS	19				1.00	0.60	0.17	0.20
119 EQIV SETS:DOTS	20					1.00	0.21	0.22
130 CLASFY(OVRLAP)	21						1.00	0.43
147 ORDRG:CO.PCS	22							1.00

N = 100 FOR CELL C1

(CONTINUED)

TABLE A7.1
(FOURTH PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.00	0.14	-0.03	-0.04	-0.05	0.36	-0.11	0.12	0.16	0.18	0.13	0.02	0.26	0.19
004 COUNT BUTTONS	2		1.00	0.31	0.35	0.67	0.31	0.35	0.33	0.47	0.23	0.20	0.41	-0.04	0.20	0.11
005 WRITE NUMERALS	3			1.00	0.34	0.44	0.15	0.31	0.31	0.46	0.18	0.45	0.66	0.15	0.08	0.06
006 COUNT MEMS:PC	4				1.00	0.48	0.19	0.37	0.29	0.32	0.08	0.42	0.48	0.09	0.33	0.25
007 IDFY NUMERALS	5					1.00	0.27	0.39	0.33	0.42	0.21	0.41	0.47	0.22	0.43	0.37
008 VIS MEMRY:OBJS	6						1.00	0.48	0.17	0.10	0.02	0.08	0.06	0.28	0.02	-0.03
010 VOCABULARY	7							1.00	0.11	0.44	-0.06	0.33	0.39	0.31	0.32	0.34
012 EQIV SETS:DOTS	8								1.00	0.37	0.28	0.20	0.17	0.09	0.28	0.18
013 ORDINAL NUMBER	9									1.00	0.15	0.42	0.63	0.09	0.14	0.03
014 ORDRG:GEO SHAP	10										1.00	0.11	0.07	-0.05	0.20	0.11
015 CLASSIFYING	11											1.00	0.50	0.19	0.34	0.22
016 ROTE COUNTING	12												1.00	0.12	0.04	0.01
017 VIS MEMRY:PICT	13													1.00	0.19	0.24
020 COLOR:NAMING	14														1.00	0.88
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21	22
003 GEO SHAP:IDFY	1	0.10	0.02	0.06	-0.07	-0.07	0.28	0.11
004 COUNT BUTTONS	2	-0.09	0.45	0.09	0.13	0.05	0.06	0.28
005 WRITE NUMERALS	3	-0.04	0.29	0.26	0.29	0.20	-0.01	0.12
006 COUNT MEMS:PC	4	-0.03	0.32	0.21	0.10	0.23	0.12	0.30
007 IDFY NUMERALS	5	0.14	0.45	0.25	0.20	0.04	-0.02	0.45
008 VIS MEMRY:OBJS	6	0.10	0.24	0.26	0.30	0.16	0.11	0.26
010 VOCABULARY	7	0.13	0.30	0.28	0.32	0.15	0.22	0.43
012 EQIV SETS:DOTS	8	-0.01	0.19	0.13	0.09	0.14	0.06	0.28
013 ORDINAL NUMBER	9	0.01	0.08	-0.09	0.08	0.20	0.15	0.31
014 ORDRG:GEO SHAP	10	-0.14	-0.05	0.06	-0.11	-0.19	0.14	0.20
015 CLASSIFYING	11	0.04	0.11	0.01	0.20	0.30	-0.06	0.42
016 ROTE COUNTING	12	-0.13	0.34	0.19	0.28	0.27	0.16	0.20
017 VIS MEMRY:PICT	13	0.20	0.23	0.31	0.28	0.04	0.08	0.15
020 COLOR:NAMING	14	-0.08	0.26	0.31	0.01	0.02	-0.02	0.57
021 COLOR:IDFYING	15	-0.14	0.20	0.45	0.04	-0.11	-0.03	0.43
104 GEO SHAP:IDFY-	16	1.00	-0.08	-0.14	0.01	-0.08	-0.10	0.01
110 COUNT MEMS:PC	17		1.00	0.63	0.30	0.22	0.23	0.17
111 CNT MEMS:OBJS	18			1.00	0.34	0.15	0.13	0.17
118 EQIV SETS:OBJS	19				1.00	0.56	-0.21	0.32
119 EQIV SETS:DOTS	20					1.00	-0.04	0.15
130 CLASFY(OVRLAP)	21						1.00	-0.09
147 ORDRG:COMPCS	22							1.00

N = 45 FOR CELL D1

(CONTINUED)

TABLE A7.1
(FIFTH PAGE)

MRT SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.15	0.04	0.05	0.08	-0.07	0.08	0.02	-0.03	0.11	0.37	0.13	0.16	0.26	0.28
004 COUNT BUTTONS	2		1.00	0.44	0.57	0.62	-0.06	0.53	0.41	0.55	0.25	0.40	0.54	0.21	0.44	0.46
005 WRITE NUMERALS	3			1.00	0.29	0.51	-0.02	0.38	0.27	0.47	0.23	0.28	0.57	0.17	0.23	0.22
006 COUNT MEMS:PC	4				1.00	0.40	0.07	0.45	0.46	0.20	0.16	0.31	0.33	0.04	0.25	0.39
007 IDFY NUMERALS	5					1.00	0.00	0.41	0.51	0.41	0.20	0.34	0.52	0.09	0.32	0.35
008 VIS MEMRY:OBJS	6						1.00	0.07	-0.04	-0.06	0.16	-0.15	-0.14	-0.09	0.05	0.08
010 VOCABULARY	7							1.00	0.31	0.43	0.16	0.50	0.36	0.21	0.35	0.41
012 EQIV SETS:DOTS	8								1.00	0.28	0.20	0.34	0.35	0.07	0.22	0.23
013 ORDINAL NUMBER	9									1.00	0.33	0.45	0.42	0.27	0.27	0.26
014 ORDRG:GEO SHAP	10										1.00	0.26	0.28	0.17	0.16	0.19
015 CLASSIFYING	11											1.00	0.46	0.25	0.34	0.37
016 ROTE COUNTING	12												1.00	0.12	0.22	0.27
017 VIS MEMRY:PICT	13													1.00	0.20	0.09
020 COLOR:NAMING	14														1.00	0.75
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21
003 GEO SHAP:IDFY	1	0.06	0.03	-0.02	0.00	0.09	-0.01
004 COUNT BUTTONS	2	0.29	0.39	0.37	0.53	0.59	0.38
005 WRITE NUMERALS	3	0.24	0.24	0.24	0.41	0.32	0.30
006 COUNT MEMS:PC	4	0.31	0.39	0.20	0.40	0.46	0.26
007 IDFY NUMERALS	5	0.19	0.33	0.43	0.59	0.64	0.35
008 VIS MEMRY:OBJS	6	0.01	0.02	0.03	-0.03	-0.08	0.20
010 VOCABULARY	7	0.35	0.36	0.34	0.47	0.40	0.14
012 EQIV SETS:DOTS	8	0.17	0.25	0.20	0.21	0.38	0.40
013 ORDINAL NUMBER	9	0.36	0.31	0.43	0.36	0.47	0.29
014 ORDRG:GEO SHAP	10	0.05	0.03	0.16	0.02	0.23	0.22
015 CLASSIFYING	11	0.27	0.18	0.25	0.23	0.43	0.30
016 ROTE COUNTING	12	0.26	0.16	0.29	0.45	0.51	0.35
017 VIS MEMRY:PICT	13	0.36	0.21	0.06	0.09	0.16	0.05
020 COLOR:NAMING	14	0.25	0.15	0.10	0.34	0.18	0.11
021 COLOR:IDFYING	15	0.27	0.23	0.11	0.34	0.38	0.04
R201 WORD MEAN:MRT	16	1.00	0.47	0.38	0.37	0.38	0.16
R202 LISTENING:MRT	17		1.00	0.40	0.37	0.42	0.20
R203 MATCHING:MRT	18			1.00	0.43	0.47	0.29
R204 ALPHABET:MRT	19				1.00	0.61	0.30
R205 NUMBERS:MRT	20					1.00	0.35
R206 COPYING:MRT	21						1.00

N = 88 FOR CELL A1

(CONTINUED)

TABLE A7.1
(SIXTH PAGE)

MRT SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.18	0.04	0.22	0.23	0.00	0.32	0.27	-0.01	0.13	0.38	-0.05	0.06	0.24	0.09
004 COUNT BUTTONS	2		1.00	0.27	0.69	0.62	-0.19	0.37	0.38	0.25	0.29	0.38	0.45	0.21	0.38	0.26
005 WRITE NUMERALS	3			1.00	0.34	0.41	0.11	0.31	0.21	0.02	0.28	0.29	0.10	0.13	0.16	0.18
006 COUNT MEMS:PC	4				1.00	0.49	-0.01	0.36	0.28	0.16	0.32	0.34	0.29	0.16	0.29	0.29
007 IDFY NUMERALS	5					1.00	-0.08	0.41	0.35	0.29	0.29	0.31	0.37	0.16	0.27	0.33
008 VIS MEMRY:OBJS	6						1.00	0.06	0.01	0.15	0.08	0.16	-0.02	0.21	0.08	0.08
010 VOCABULARY	7							1.00	0.38	0.34	0.48	0.31	0.31	0.05	0.24	0.22
012 EQIV SETS:DOTS	8								1.00	0.17	0.24	0.44	0.24	0.27	0.31	0.18
013 ORDINAL NUMBER	9									1.00	0.36	0.29	0.42	-0.02	0.20	0.07
014 ORDRG:GEO SHAP	10										1.00	0.34	0.27	0.33	0.21	0.23
015 CLASSIFYING	11											1.00	0.19	0.31	0.41	0.28
016 ROTE COUNTING	12												1.00	0.16	0.18	0.19
017 VIS MEMRY:PICT	13													1.00	0.22	0.12
020 COLOR:NAMING	14														1.00	0.65
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21
003 GEO SHAP:IDFY	1	0.23	0.27	0.36	0.16	0.31	-0.04
004 COUNT BUTTONS	2	0.28	0.28	0.41	0.43	0.56	0.31
005 WRITE NUMERALS	3	0.19	0.28	0.28	0.38	0.32	0.26
006 COUNT MEMS:PC	4	0.24	0.28	0.42	0.33	0.42	0.41
007 IDFY NUMERALS	5	0.20	0.30	0.33	0.52	0.48	0.28
008 VIS MEMRY:OBJS	6	0.05	0.23	-0.08	0.05	0.10	-0.17
010 VOCABULARY	7	0.35	0.55	0.19	0.42	0.29	0.13
012 EQIV SETS:DOTS	8	0.33	0.37	0.51	0.22	0.37	0.25
013 ORDINAL NUMBER	9	0.18	0.15	0.13	0.26	0.26	0.09
014 ORDRG:GEO SHAP	10	0.44	0.36	0.16	0.36	0.32	0.34
015 CLASSIFYING	11	0.40	0.33	0.36	0.10	0.40	0.23
016 ROTE COUNTING	12	0.04	0.07	0.30	0.30	0.39	0.31
017 VIS MEMRY:PICT	13	0.21	0.24	0.19	0.12	0.21	0.10
020 COLOR:NAMING	14	0.39	0.26	0.35	0.29	0.42	0.14
C21 COLOR:IDFYING	15	0.32	0.23	0.24	0.28	0.36	0.28
R201 WORD MEAN:MRT	16	1.00	0.57	0.24	0.24	0.43	0.18
R202 LISTENING:MRT	17		1.00	0.33	0.27	0.36	0.05
R203 MATCHING:MRT	18			1.00	0.32	0.52	0.33
R204 ALPHABET:MRT	19				1.00	0.49	0.19
R205 NUMBERS:MRT	20					1.00	0.23
R206 COPYING:MRT	21						1.00

N = 82 FOR CELL B1

(CONTINUED)

TABLE A7.1
(SEVENTH PAGE)

MRT SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.09	0.05	0.17	0.21	0.06	0.38	0.09	0.19	-0.04	0.28	0.21	0.10	0.13	0.17
004 COUNT BUTTONS	2		1.00	0.43	0.66	0.66	0.01	0.28	0.48	0.54	0.25	0.49	0.40	0.20	0.35	0.41
005 WRITE NUMERALS	3			1.00	0.48	0.57	0.15	0.23	0.20	0.42	0.24	0.34	0.39	0.07	0.31	0.28
006 COUNT MEMS:PC	4				1.00	0.53	0.02	0.23	0.48	0.34	0.13	0.45	0.37	0.24	0.43	0.44
007 IDFY NUMERALS	5					1.00	-0.06	0.18	0.40	0.47	0.26	0.50	0.47	0.12	0.34	0.34
008 VIS MEMRY:OBJS	6						1.00	0.13	-0.02	0.14	0.08	0.09	0.03	0.01	-0.03	-0.03
010 VOCABULARY	7							1.00	0.11	0.49	0.10	0.43	0.32	0.19	0.24	0.34
012 EQIV SETS:DOTS	8								1.00	0.32	0.26	0.37	0.16	0.25	0.15	0.14
013 ORDINAL NUMBER	9									1.00	0.36	0.42	0.39	0.05	0.20	0.23
014 ORDRG:GEO SHAP	10										1.00	0.25	0.10	-0.12	0.06	0.09
015 CLASSIFYING	11											1.00	0.30	0.19	0.30	0.35
016 ROTE COUNTING	12												1.00	0.17	0.32	0.31
017 VIS MEMRY:PICT	13													1.00	0.13	0.13
020 COLOR:NAMING	14														1.00	0.89
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21
003 GEO SHAP:IDFY	1	0.22	0.23	-0.01	0.12	0.20	-0.00
004 COUNT BUTTONS	2	0.28	0.22	0.47	0.27	0.55	0.30
005 WRITE NUMERALS	3	0.16	0.21	0.37	0.28	0.54	0.34
006 COUNT MEMS:PC	4	0.16	0.29	0.44	0.33	0.44	0.21
007 IDFY NUMERALS	5	0.20	0.24	0.33	0.26	0.50	0.27
008 VIS MEMRY:OBJS	6	0.07	0.07	0.19	0.14	0.26	0.15
010 VOCABULARY	7	0.38	0.34	0.13	0.28	0.34	0.19
012 EQIV SETS:DOTS	8	0.26	0.36	0.40	0.28	0.38	0.37
013 ORDINAL NUMBER	9	0.27	0.26	0.32	0.09	0.46	0.31
014 ORDRG:GEO SHAP	10	0.16	0.06	0.21	0.03	0.25	0.28
015 CLASSIFYING	11	0.41	0.32	0.38	0.16	0.49	0.39
016 ROTE COUNTING	12	0.22	0.15	0.22	0.14	0.38	0.20
017 VIS MEMRY:PICT	13	0.16	0.13	0.05	0.21	0.10	0.05
020 COLOR:NAMING	14	0.06	0.19	0.19	0.28	0.23	0.14
021 COLOR:IDFYING	15	0.10	0.13	0.17	0.33	0.30	0.18
R201 WORD MEAN:MRT	16	1.00	0.52	0.27	0.24	0.34	0.32
R202 LISTENING:MRT	17		1.00	0.39	0.31	0.50	0.45
R203 MATCHING:MRT	18			1.00	0.28	0.57	0.41
R204 ALPHABET:MRT	19				1.00	0.38	0.29
R205 NUMBERS:MRT	20					1.00	0.49
R206 COPYING:MRT	21						1.00

N = 90 FOR CELL C1

(CONTINUED)

TABLE A7.1
(EIGHTH PAGE)

MRT SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.01	0.14	-0.02	-0.03	-0.04	0.37	-0.11	0.13	0.17	0.18	0.14	0.02	0.26	0.19
004 COUNT BUTTONS	2		1.00	0.30	0.35	0.67	0.27	0.38	0.41	0.46	0.31	0.32	0.41	-0.00	0.25	0.14
005 WRITE NUMERALS	3			1.00	0.32	0.44	0.14	0.31	0.33	0.45	0.18	0.48	0.66	0.15	0.09	0.07
006 COUNT MEMS:PC	4				1.00	0.51	0.18	0.35	0.32	0.28	0.06	0.44	0.46	0.06	0.36	0.28
007 IDFY NUMERALS	5					1.00	0.25	0.41	0.36	0.43	0.27	0.49	0.49	0.26	0.45	0.38
008 VIS MEMRY:OBJS	6						1.00	0.49	0.19	0.09	0.04	0.12	0.05	0.31	0.03	-0.02
010 VOCABULARY	7							1.00	0.12	0.43	-0.08	0.33	0.38	0.30	0.33	0.35
012 EQIV SETS:DOTS	8								1.00	0.41	0.28	0.18	0.20	0.09	0.27	0.17
013 ORDINAL NUMBER	9									1.00	0.15	0.46	0.61	0.08	0.16	0.05
014 ORDRG:GEO SHAP	10										1.00	0.06	0.06	-0.09	0.21	0.11
015 CLASSIFYING	11											1.00	0.53	0.15	0.34	0.22
016 ROTE COUNTING	12												1.00	0.11	0.06	0.02
017 VIS MEMRY:PICT	13													1.00	0.20	0.24
020 COLOR:NAMING	14														1.00	0.88
021 COLOR:IDFYING	15															1.00

		16	17	18	19	20	21
003 GEO SHAP:IDFY	1	0.30	0.30	-0.10	0.30	0.22	0.02
004 COUNT BUTTONS	2	0.08	0.20	0.36	0.27	0.49	0.34
005 WRITE NUMERALS	3	0.02	0.31	0.22	0.44	0.52	0.40
006 COUNT MEMS:PC	4	0.21	0.36	0.17	0.47	0.39	0.25
007 IDFY NUMERALS	5	0.12	0.21	0.32	0.54	0.47	0.38
008 VIS MEMRY:OBJS	6	0.22	0.26	0.36	0.04	0.08	0.17
010 VOCABULARY	7	0.55	0.55	0.11	0.35	0.49	0.41
012 EQIV SETS:DOTS	8	0.01	0.18	0.15	0.08	0.19	0.04
013 ORDINAL NUMBER	9	0.14	0.35	0.07	0.23	0.37	0.32
014 ORDRG:GEO SHAP	10	-0.16	0.00	0.36	0.27	0.19	0.25
015 CLASSIFYING	11	0.18	0.38	0.16	0.55	0.34	0.09
016 ROTE COUNTING	12	0.06	0.30	0.27	0.38	0.64	0.34
017 VIS MEMRY:PICT	13	0.07	0.21	0.03	0.05	0.04	0.22
020 COLOR:NAMING	14	0.13	0.23	0.03	0.56	0.25	0.17
021 COLOR:IDFYING	15	0.14	0.13	-0.08	0.56	0.22	0.19
R201 WORD MEAN:MRT	16	1.00	0.51	-0.07	0.09	0.29	0.12
R202 LISTENING:MRT	17		1.00	0.08	0.12	0.36	0.22
R203 MATCHING:MRT	18			1.00	0.22	0.36	0.40
R204 ALPHABET:MRT	19				1.00	0.49	0.32
R205 NUMBERS:MRT	20					1.00	0.56
R206 COPYING:MRT	21						1.00

N = 43 FOR CELL D1

(CONTINUED)

TABLE A7.1
(NINTH PAGE)

WPSSI SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.18	0.06	0.08	0.09	-0.10	0.13	0.04	-0.02	0.09	0.40	0.14	0.18	0.25	0.25
004 COUNT BUTTONS	2		1.00	0.46	0.59	0.58	-0.06	0.54	0.43	0.56	0.27	0.45	0.55	0.23	0.44	0.45
005 WRITE NUMERALS	3			1.00	0.31	0.49	-0.03	0.37	0.27	0.48	0.24	0.30	0.58	0.17	0.23	0.22
006 COUNT MEMS:PC	4				1.00	0.38	0.05	0.46	0.48	0.24	0.17	0.34	0.34	0.05	0.27	0.39
007 IDFY NUMERALS	5					1.00	-0.06	0.43	0.47	0.37	0.21	0.35	0.51	0.10	0.31	0.33
008 VIS MEMRY:OBJS	6						1.00	0.04	0.01	-0.02	0.14	-0.17	-0.15	-0.10	0.03	0.07
010 VOCABULARY	7							1.00	0.33	0.42	0.17	0.53	0.36	0.23	0.39	0.44
012 EQIV SETS:DOTS	8								1.00	0.28	0.22	0.35	0.35	0.10	0.25	0.26
013 ORDINAL NUMBER	9									1.00	0.34	0.46	0.43	0.26	0.27	0.25
014 ORDRG:GEO SHAP	10										1.00	0.24	0.28	0.16	0.14	0.17
015 CLASSIFYING	11											1.00	0.48	0.27	0.36	0.37
016 ROTE COUNTING	12												1.00	0.14	0.23	0.27
017 VIS MEMRY:PICT	13													1.00	0.24	0.13
020 COLOR:NAMING	14														1.00	0.77
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.06	0.13	0.01	0.05
004 COUNT BUTTONS	2	0.39	0.32	0.31	0.35
005 WRITE NUMERALS	3	0.41	0.23	0.24	0.26
006 COUNT MEMS:PC	4	0.38	0.24	0.33	0.30
007 IDFY NUMERALS	5	0.33	0.36	0.28	0.28
008 VIS MEMRY:OBJS	6	0.04	-0.06	0.07	0.09
010 VOCABULARY	7	0.44	0.37	0.24	0.31
012 EQIV SETS:DOTS	8	0.20	0.24	0.22	0.35
013 ORDINAL NUMBER	9	0.33	0.18	0.21	0.44
014 ORDRG:GEO SHAP	10	0.04	0.00	0.03	0.16
015 CLASSIFYING	11	0.27	0.22	0.16	0.30
016 ROTE COUNTING	12	0.41	0.27	0.24	0.35
017 VIS MEMRY:PICT	13	0.22	0.20	0.17	0.33
020 COLOR:NAMING	14	0.28	0.27	0.25	0.28
021 COLOR:IDFYING	15	0.20	0.26	0.25	0.34
M112 VOCB:WPSI SCA	16	1.00	0.44	0.49	0.52
M114 SIML:WPSI SCA	17		1.00	0.29	0.27
M117 P.CM:WPSI SCA	18			1.00	0.50
M120 BLKD:WPSI SCA	19				1.00

N = 94 FOR CELL A1

(CONTINUED)

TABLE A7.1
(TENTH PAGE)

WPSSI SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.28	0.06	0.25	0.21	0.06	0.32	0.27	0.05	0.13	0.38	-0.03	0.18	0.34	0.30
004 COUNT BUTTONS	2		1.00	0.31	0.66	0.56	-0.14	0.43	0.36	0.24	0.26	0.32	0.41	0.08	0.14	0.18
005 WRITE NUMERALS	3			1.00	0.36	0.43	0.02	0.28	0.21	0.12	0.31	0.27	0.20	0.13	0.20	0.24
006 COUNT MEMS:PC	4				1.00	0.46	0.02	0.36	0.32	0.16	0.34	0.34	0.29	0.07	0.22	0.29
007 IDFY NUMERALS	5					1.00	-0.09	0.40	0.33	0.30	0.32	0.25	0.37	0.30	0.04	0.03
008 VIS MEMRY:OBJS	6						1.00	0.05	0.03	0.12	0.04	0.23	-0.06	0.10	0.27	0.28
010 VOCABULARY	7							1.00	0.36	0.35	0.45	0.32	0.30	0.24	0.21	0.12
012 EQIV SETS:DOTS	8								1.00	0.15	0.24	0.42	0.23	-0.05	0.20	0.08
013 ORDINAL NUMBER	9									1.00	0.37	0.31	0.45	0.25	0.16	0.16
014 ORDRG:GEO SHAP	10										1.00	0.31	0.29	0.31	0.34	0.21
015 CLASSIFYING	11											1.00	0.19	0.08	0.17	0.18
016 ROTE COUNTING	12												1.00	1.00	0.18	0.10
020 COLOR:NAMING	14														1.00	0.64
021 COLOR:IDFYING	15															1.00

		16	17	18	19
004 COUNT BUTTONS	2	0.15	0.06	0.38	0.34
005 WRITE NUMERALS	3	0.10	0.06	0.08	0.21
006 COUNT MEMS:PC	4	0.14	0.06	0.26	0.38
007 IDFY NUMERALS	5	0.14	0.13	0.24	0.29
008 VIS MEMRY:OBJS	6	0.03	0.12	0.11	0.05
010 VOCABULARY	7	0.27	0.23	0.28	0.37
012 EQIV SETS:DOTS	8	0.27	-0.09	0.43	0.30
013 ORDINAL NUMBER	9	-0.00	0.04	0.20	0.22
014 ORDRG:GEO SHAP	10	0.23	0.10	0.34	0.34
015 CLASSIFYING	11	0.42	0.22	0.21	0.26
016 ROTE COUNTING	12	0.01	-0.02	0.43	0.14
017 VIS MEMRY:PICT	13	0.21	-0.01	0.40	0.00
020 COLOR:NAMING	14	0.28	0.19	0.10	0.12
021 COLOR:IDFYING	15	0.22	0.21	0.04	0.16
M112 VOCB:WPSI SCA	16	1.00	0.41	0.34	0.26
M114 SIML:WPSI SCA	17		1.00	-0.06	0.09
M117 P.CN:WPSI SCA	18			1.00	0.35
M120 BLKD:WPSI SCA	19				1.00

N = 87 FOR CELL B1

(CONTINUED)

TABLE A7.1
(ELEVENTH PAGE)

WPSSI SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	0.10	0.07	0.19	0.14	0.02	0.30	0.06	0.16	-0.05	0.23	0.21	0.14	0.40	0.44
004 COUNT BUTTONS	2		1.00	0.44	0.67	0.61	0.01	0.26	0.49	0.58	0.24	0.51	0.43	0.03	0.33	0.30
005 WRITE NUMERALS	3			1.00	0.48	0.55	0.17	0.23	0.20	0.44	0.25	0.38	0.41	0.18	0.45	0.44
006 COUNT MEMS:PC	4				1.00	0.50	0.03	0.25	0.48	0.40	0.13	0.47	0.41	0.12	0.27	0.34
007 IDFY NUMERALS	5					1.00	-0.06	0.20	0.36	0.47	0.24	0.48	0.46	0.03	0.04	0.04
008 VIS MEMRY:OBJS	6						1.00	0.13	-0.05	0.11	0.13	0.15	0.05	0.21	0.17	0.31
010 VOCABULARY	7							1.00	0.04	0.46	0.07	0.39	0.32	0.26	0.18	0.16
012 EQIV SETS:DOTS	8								1.00	0.27	0.18	0.30	0.20	0.06	0.22	0.25
013 ORDINAL NUMBER	9									1.00	0.33	0.39	0.44	-0.18	0.11	0.14
014 ORDRG:GEO SHAP	10										1.00	0.29	0.10	0.11	0.35	0.41
015 CLASSIFYING	11											1.00	0.33	0.14	0.37	0.35
016 ROTE COUNTING	12												1.00	1.00	0.04	0.07
020 COLOR:NAMING	14														1.00	0.87
021 COLOR:IDFYING	15															1.00

		16	17	18	19
004 COUNT BUTTONS	2	0.14	-0.07	0.14	0.24
005 WRITE NUMERALS	3	0.14	0.03	0.22	0.20
006 COUNT MEMS:PC	4	0.27	0.03	0.19	0.15
007 IDFY NUMERALS	5	0.10	-0.08	0.15	0.06
008 VIS MEMRY:OBJS	6	0.20	-0.19	0.10	0.03
010 VOCABULARY	7	0.39	-0.07	0.20	-0.01
012 EQIV SETS:DOTS	8	0.21	0.04	0.14	0.38
013 ORDINAL NUMBER	9	0.09	-0.13	0.15	0.14
014 ORDRG:GEO SHAP	10	-0.18	-0.15	0.10	0.14
015 CLASSIFYING	11	0.17	-0.05	0.28	0.06
016 ROTE COUNTING	12	0.29	0.06	0.04	-0.07
017 VIS MEMRY:PICT	13	0.27	-0.04	-0.03	-0.04
020 COLOR:NAMING	14	0.11	0.15	0.09	0.06
021 COLOR:IDFYING	15	0.11	0.01	0.11	0.08
M112 VOCB:WPSI SCA	16	1.00	0.32	0.28	0.13
M114 SIML:WPSI SCA	17		1.00	-0.03	0.03
M117 P.CM:WPSI SCA	18			1.00	0.22
M120 BLKD:WPSI SCA	19				1.00

N = 98 FOR CELL C1

(CONTINUED)

TABLE A7.1
(TWELFTH PAGE)

WPSSI SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
003 GEO SHAP:IDFY	1	1.00	-0.05	0.13	-0.05	-0.08	-0.05	0.35	-0.10	0.11	0.15	0.16	0.12	-0.00	0.23	0.16
004 COUNT BUTTONS	2		1.00	0.31	0.32	0.63	0.32	0.34	0.37	0.49	0.19	0.14	0.41	-0.10	0.03	-0.04
005 WRITE NUMERALS	3			1.00	0.33	0.43	0.15	0.31	0.31	0.45	0.16	0.44	0.66	0.14	0.04	0.03
006 COUNT MEMS:PC	4				1.00	0.46	0.19	0.36	0.31	0.32	0.06	0.40	0.47	0.06	0.29	0.21
007 IDFY NUMERALS	5					1.00	0.28	0.37	0.36	0.43	0.18	0.37	0.47	0.19	0.34	0.29
008 VIS MEMRY:OBJS	6						1.00	0.48	0.17	0.10	0.02	0.08	0.06	0.29	0.01	-0.04
010 VOCABULARY	7							1.00	0.12	0.44	-0.08	0.31	0.39	0.30	0.30	0.32
012 EQIV SETS:DOTS	8								1.00	0.37	0.29	0.21	0.18	0.10	0.35	0.21
013 ORDINAL NUMBER	9									1.00	0.15	0.42	0.63	0.08	0.13	0.02
014 ORDRG:GEO SHAP	10										1.00	0.08	0.05	-0.07	0.14	0.05
015 CLASSIFYING	11											1.00	0.49	0.16	0.29	0.16
016 ROTE COUNTING	12												1.00	0.11	0.00	-0.02
017 VIS MEMRY:PICT	13													1.00	0.14	0.20
020 COLOR:NAMING	14														1.00	0.86
021 COLOR:IDFYING	15															1.00

		16	17	18	19
003 GEO SHAP:IDFY	1	0.28	0.39	0.00	0.08
004 COUNT BUTTONS	2	-0.10	0.18	0.20	0.01
005 WRITE NUMERALS	3	0.28	0.09	0.32	0.12
006 COUNT MEMS:PC	4	0.36	0.22	-0.08	-0.03
007 IDFY NUMERALS	5	0.06	0.08	0.07	0.13
008 VIS MEMRY:OBJS	6	0.25	-0.07	-0.08	0.05
010 VOCABULARY	7	0.51	0.37	0.05	0.02
012 EQIV SETS:DOTS	8	-0.02	-0.16	0.31	0.36
013 ORDINAL NUMBER	9	0.15	0.26	0.33	0.16
014 ORDRG:GEO SHAP	10	-0.01	0.11	0.32	0.42
015 CLASSIFYING	11	0.37	0.10	0.18	-0.00
016 ROTE COUNTING	12	0.18	0.26	0.18	-0.02
017 VIS MEMRY:PICT	13	0.17	-0.15	-0.12	0.19
020 COLOR:NAMING	14	0.08	0.01	-0.08	0.14
021 COLOR:IDFYING	15	0.16	0.00	-0.22	0.02
M112 VOCB:WPSI SCA	16	1.00	0.23	-0.06	-0.02
M114 SIML:WPSI SCA	17		1.00	0.14	-0.15
M117 P.CM:WPSI SCA	18			1.00	0.35
M120 BLKD:WPSI SCA	19				1.00

N = 44 FOR CELL D1

Table A7.2
Regression Weights by Cell
for End-of-Kindergarten Common Scales
Using Beginning-of-Kindergarten Scales as Covariates
Longitudinal Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 104 GEOMETRIC SHAPES: IDENTIFYING

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.125	-0.029	0.059	-0.091	0.045	0.045
012 EQIV SETS:DOTS	0.078	0.251	0.053	0.035	0.114	0.117
020 COLOR:NAMING	0.129	0.263	0.049	-0.088	0.119	0.115

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.044	-0.010	0.020	-0.031	0.015	0.015
012 EQIV SETS:DOTS	0.031	0.099	0.027	0.014	0.045	0.046
020 COLOR:NAMING	0.062	0.126	0.043	-0.042	0.057	0.055
RSQ	0.054	0.101	0.032	0.014	0.039	0.047
R	0.231	0.317	0.178	0.117	0.198	0.216
F	1.746	3.204	1.073	0.190	4.485	5.368
P	0.163	0.027	0.363	0.903	0.004	0.001

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DEPENDENT VARIABLE -- 110 COUNTING NUMBERS OF A GIVEN SET: PICTURE CARDS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.414	0.051	0.322	0.401	0.328	0.316
006 COUNT MEMS:PC	-0.136	0.219	0.144	0.155	0.057	0.080
012 EQIV SETS:DOTS	0.255	0.126	0.163	0.013	0.162	0.155

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.454	0.056	0.354	0.441	0.354	0.347
006 COUNT MEMS:PC	-0.130	0.208	0.137	0.148	0.064	0.062
012 EQIV SETS:DOTS	0.300	0.153	0.233	0.017	0.206	0.198
RSQ	0.209	0.131	0.254	0.238	0.197	0.227
R	0.457	0.362	0.504	0.488	0.444	0.476
F	8.256	4.329	11.131	4.269	27.120	42.351
P	0.000	0.007	0.000	0.010	0.000	0.000

(continued)

Table A7.2
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 111 COUNTING MEMBERS OF A GIVEN SET: OBJECTS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.338	0.084	0.120	-0.022	0.206	0.204
012 EQIV SETS:DOTS	0.148	-0.026	0.293	0.111	0.150	0.137
016 ROTE COUNTING	0.071	0.038	0.369	0.120	0.103	0.095

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.346	0.085	0.123	-0.022	0.211	0.208
012 EQIV SETS:DOTS	0.176	-0.031	0.348	0.131	0.178	0.163
016 ROTE COUNTING	0.110	0.059	0.577	0.188	0.160	0.149
RSQ	0.167	0.013	0.230	0.047	0.115	0.122
R	0.409	0.114	0.479	0.217	0.339	0.349
F	6.232	0.376	9.744	0.678	14.327	15.250
P	0.001	0.770	0.000	0.571	0.000	0.000

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DEPENDENT VARIABLE -- 118 EQUIVALENT SETS: OBJECTS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.285	0.369	0.250	0.119	0.278	0.291
012 EQIV SETS:DOTS	0.325	0.000	0.135	0.056	0.159	0.166

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.218	0.282	0.191	0.091	0.213	0.223
012 EQIV SETS:DOTS	0.286	0.000	0.120	0.050	0.141	0.147
RSQ	0.230	0.152	0.096	0.020	0.127	0.160
R	0.480	0.390	0.310	0.140	0.356	0.399
F	14.188	7.808	5.267	0.422	24.147	31.518
P	0.000	0.001	0.007	0.659	0.000	0.000

(continued)

Table A7.2
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 119 EQUIVALENT SETS: DOTS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.226	0.030	0.404	-0.066	0.221	0.218
006 COUNT MEMS:PC	0.110	0.248	-0.020	0.192	0.122	0.142
012 EQIV SETS:DOTS	0.332	0.104	0.126	0.086	0.194	0.181

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.132	0.017	0.237	-0.038	0.130	0.128
006 COUNT MEMS:PC	0.056	0.125	-0.010	0.097	0.061	0.072
012 EQIV SETS:DOTS	0.225	0.071	0.086	0.059	0.125	0.123
RSQ	0.199	0.178	0.236	0.062	0.170	0.204
R	0.446	0.422	0.486	0.250	0.412	0.451
F	7.783	6.220	10.118	0.908	22.612	28.205
P	0.000	0.001	0.000	0.445	0.000	0.000

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DEPENDENT VARIABLE -- 130 CLASSIFYING S-2

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.298	0.033	0.171	-0.004	0.178	0.227
010 VOCABULARY	0.143	0.081	0.177	0.169	0.147	0.170
015 CLASSIFYING	0.137	0.126	0.185	-0.086	0.128	0.158

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.131	0.014	0.075	-0.002	0.078	0.100
010 VOCABULARY	0.052	0.029	0.064	0.061	0.053	0.061
015 CLASSIFYING	0.076	0.070	0.102	-0.048	0.071	0.088
RSQ	0.131	0.141	0.216	0.066	0.135	0.200
R	0.362	0.376	0.464	0.257	0.367	0.447
F	4.727	4.708	8.986	0.970	17.186	27.531
P	0.004	0.004	0.000	0.416	0.000	0.000

(continued)

Table A7.2
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 147 ORDERING COMPOSITE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.387	0.149	0.399	0.082	0.325	0.359
012 EQIV SETS:DOTS	0.187	0.102	0.150	0.093	0.153	0.189
013 ORDINAL NUMBER	-0.032	0.052	0.154	0.070	0.071	0.101
014 ORDRG:GEO SHAP	0.262	0.112	0.122	0.050	0.127	0.148

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.560	0.215	0.577	0.119	0.470	0.519
012 EQIV SETS:DOTS	0.314	0.170	0.252	0.157	0.256	0.318
013 ORDINAL NUMBER	-0.068	0.111	0.330	0.169	0.152	0.215
014 ORDRG:GEO SHAP	1.095	0.467	0.510	0.210	0.531	0.621
RSQ	0.357	0.103	0.372	0.152	0.273	0.372
R	0.598	0.320	0.610	0.390	0.522	0.610
F	12.920	2.433	14.374	1.799	30.949	48.994
P	0.000	0.054	0.000	0.148	0.000	0.000

(continued)

Table A7.2
(fifth page)

B. WPPSI Scales

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DEPENDENT VARIABLE -- M112 WPPSI VOCABULARY SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003	GEO SHAP:ICFY	-0.013	0.238	0.064	0.069	0.086	0.091
004	COUNT BLTTCNS	0.192	-0.021	0.033	-0.358	0.045	0.116
010	VOCABULARY	0.330	0.220	0.311	0.641	0.335	0.372

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003	GEO SHAP:ICFY	-0.028	0.522	0.141	0.152	0.188	0.200
004	COUNT BLTTCNS	0.215	-0.024	0.037	-0.400	0.050	0.130
010	VOCABULARY	0.308	0.206	0.290	0.589	0.313	0.347
	RSQ	0.228	0.111	0.184	0.340	0.162	0.224
	R	0.478	0.334	0.429	0.583	0.402	0.473
	F	9.175	3.506	7.143	6.878	20.809	31.186
	P	0.000	0.019	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- M114 WPPSI SIMILARITIES SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003	GEO SHAP:ICFY	0.070	0.106	0.075	0.360	0.100	0.105
004	COUNT BUTTONS	0.162	-0.085	-0.043	0.169	0.049	0.080
010	VOCABULARY	0.313	0.244	-0.019	0.251	0.153	0.166

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003	GEO SHAP:ICFY	0.150	0.228	0.162	0.773	0.214	0.226
004	COUNT BLTTCNS	0.177	-0.093	-0.047	0.185	0.053	0.088
010	VOCABULARY	0.286	0.223	-0.018	0.230	0.140	0.152
	RSQ	0.152	0.065	0.007	0.225	0.049	0.071
	R	0.390	0.256	0.086	0.475	0.222	0.267
	F	5.572	1.956	0.238	3.892	5.603	8.290
	P	0.001	0.127	0.870	0.016	0.001	0.000

(continued)

Table A7.2
(sixth page)

B. WPPSI Scales (continued)

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DEPENDENT VARIABLE -- M117 WPPSI PICTURE COMPLETION SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.264	0.202	-0.050	0.117	0.137	0.173
012 EQIV SETS:DOTS	0.075	0.423	0.110	0.271	0.172	0.202
015 CLASSIFYING	0.007	-0.036	0.238	0.120	0.091	0.111

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.282	0.311	-0.054	0.125	0.146	0.185
012 EQIV SETS:DOTS	0.034	0.524	0.136	0.336	0.213	0.250
015 CLASSIFYING	0.009	-0.049	0.322	0.162	0.124	0.150
RSQ	0.096	0.232	0.084	0.119	0.095	0.152
R	0.309	0.482	0.290	0.344	0.308	0.390
F	3.313	8.572	2.938	1.795	11.432	19.523
P	0.023	0.000	0.037	0.164	0.000	0.000

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DEPENDENT VARIABLE -- M120 WPPSI BLOCK DESIGN SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.186	0.075	0.184	-0.185	0.123	0.124
006 COUNT MEMS:PC	0.097	0.179	-0.160	-0.097	0.017	0.036
012 EQIV SETS:DOTS	0.222	0.205	0.313	0.361	0.258	0.259
014 ORDRG:GEO SHAP	0.061	0.230	0.066	0.289	0.161	0.179

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.191	0.077	0.190	-0.190	0.126	0.127
006 COUNT MEMS:PC	0.086	0.158	-0.142	-0.086	0.015	0.032
012 EQIV SETS:DOTS	0.266	0.244	0.373	0.431	0.308	0.309
014 ORDRG:GEO SHAP	0.181	0.684	0.194	0.856	0.479	0.531
RSQ	0.181	0.212	0.155	0.276	0.162	0.204
R	0.425	0.460	0.394	0.526	0.402	0.451
F	5.124	5.640	4.354	3.720	15.716	20.861
P	0.001	0.000	0.003	0.012	0.000	0.000

(continued)

Table A7.2
(seventh page)

B. WPPSI Scales (continued)

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DEPENDENT VARIABLE -- M123 WPPSI SHORT FORM TOTAL SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.003	0.151	0.023	0.124	0.069	0.066
004 COUNT BUTTONS	0.273	0.097	-0.011	-0.112	0.094	0.130
010 VOCABULARY	0.317	0.175	0.174	0.396	0.243	0.268
012 EQIV SETS:DOTS	0.147	0.181	0.287	0.081	0.201	0.233
014 ORDRG:GEO SHAP	-0.071	0.216	-0.082	0.251	0.055	0.085

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
003 GEO SHAP:IDFY	0.020	0.389	0.165	0.731	0.408	0.389
004 COUNT BUTTONS	0.817	0.289	-0.033	-0.335	0.281	0.391
010 VOCABULARY	0.795	0.438	0.435	0.992	0.608	0.672
012 EQIV SETS:DOTS	0.510	0.626	0.992	0.280	0.697	0.805
014 ORDRG:GEO SHAP	-0.612	1.363	-0.706	2.162	0.477	0.723
RSQ	0.276	0.300	0.178	0.390	0.214	0.300
R	0.525	0.547	0.421	0.625	0.463	0.548
F	6.929	7.019	4.015	4.861	17.525	27.656
P	0.000	0.000	0.002	0.002	0.000	0.000

(continued)

Table A7.2
(eighth page)

C. MRT Scales

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DEPENDENT VARIABLE -- F201 MRT WORD MEANING RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.122	0.099	0.054	-0.188	0.070	0.126
010 VOCABULARY	0.210	0.232	0.215	0.627	0.260	0.289
015 CLASSIFYING	0.113	0.258	0.266	0.035	0.194	0.219

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.141	0.115	0.062	-0.216	0.080	0.145
010 VOCABULARY	0.199	0.220	0.204	0.594	0.246	0.275
015 CLASSIFYING	0.167	0.380	0.392	0.052	0.286	0.323
RSQ	0.129	0.256	0.235	0.323	0.197	0.260
R	0.359	0.506	0.484	0.568	0.444	0.510
F	4.390	9.056	9.197	6.196	25.276	36.154
P	0.006	0.000	0.000	0.002	0.000	0.000

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DEPENDENT VARIABLE -- F202 MRT LISTENING RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.324	0.058	0.056	-0.074	0.141	0.182
010 VOCABULARY	0.229	0.486	0.191	0.548	0.312	0.327
015 CLASSIFYING	-0.050	0.145	0.238	0.247	0.122	0.136

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.354	0.063	0.062	-0.081	0.154	0.198
010 VOCABULARY	0.205	0.434	0.170	0.489	0.279	0.292
015 CLASSIFYING	-0.070	0.203	0.332	0.346	0.170	0.190
RSQ	0.216	0.385	0.175	0.348	0.219	0.273
R	0.464	0.621	0.418	0.590	0.468	0.523
F	8.252	16.518	6.297	6.941	28.958	38.695
P	0.000	0.000	0.001	0.001	0.000	0.000

(continued)

Table A7.2
(ninth page)

C. MRT Scales (continued)

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DEPENDENT VARIABLE -- F203 MRT MATCHING RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004	COUNT BUTTONS	0.355	0.253	0.187	0.253	0.271	0.291
005	WRITE NUMERALS	0.053	0.094	0.211	0.077	0.101	0.094
012	EQIV SETS:DOTS	0.021	0.336	0.235	-0.364	0.151	0.164
014	ORDRG:DEC SHAP	0.044	-0.098	0.018	0.179	0.053	0.053
015	CLASSIFYING	0.106	0.106	0.101	0.012	0.097	0.108

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004	COUNT BUTTONS	0.459	0.322	0.239	0.322	0.346	0.371
005	WRITE NUMERALS	0.085	0.151	0.340	0.125	0.163	0.152
012	EQIV SETS:DOTS	0.030	0.494	0.346	-0.094	0.222	0.249
014	ORDRG:DEC SHAP	0.162	-0.214	0.067	0.658	0.120	0.196
015	CLASSIFYING	0.178	0.174	0.166	0.020	0.159	0.178
	RSQ	0.184	0.350	0.288	0.211	0.230	0.287
	R	0.428	0.592	0.536	0.459	0.479	0.535
	F	3.957	8.298	6.951	1.973	18.257	24.590
	P	0.003	0.000	0.000	0.106	0.000	0.000

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DEPENDENT VARIABLE -- F204 MRT ALPHABET RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
007	IDFY NUMERALS	0.470	0.394	0.173	0.278	0.347	0.331
010	VOCABULARY	0.307	0.254	0.176	0.070	0.225	0.212
020	COLOR:NAMING	0.151	0.166	0.128	0.380	0.153	0.116

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
007	IDFY NUMERALS	0.580	0.487	0.214	0.343	0.429	0.409
010	VOCABULARY	0.377	0.312	0.217	0.086	0.276	0.260
020	COLOR:NAMING	0.331	0.364	0.280	0.833	0.335	0.253
	RSQ	0.389	0.365	0.161	0.417	0.296	0.267
	R	0.624	0.604	0.401	0.646	0.544	0.516
	F	18.927	15.110	5.678	9.317	43.145	37.312
	P	0.000	0.000	0.001	0.000	0.000	0.000

(continued)

Table A7.2
(tenth page)

C. MRT Scales (continued)

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DEPENDENT VARIABLE -- R205 MRT NUMBERS RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.236	0.344	0.261	0.269	0.272	0.275
007 IDEY NUMERALS	0.376	0.144	0.128	0.101	0.208	0.232
015 CLASSIFYING	0.184	0.174	0.216	-0.065	0.164	0.183
016 ROTE COUNTING	0.122	0.120	0.164	0.341	0.173	0.162

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.363	0.530	0.402	0.415	0.419	0.423
007 IDEY NUMERALS	0.477	0.183	0.162	0.128	0.263	0.294
015 CLASSIFYING	0.366	0.345	0.428	-0.128	0.325	0.363
016 ROTE COUNTING	0.285	0.280	0.382	0.796	0.402	0.378
RSQ	0.510	0.377	0.376	0.472	0.415	0.457
R	0.714	0.614	0.613	0.687	0.644	0.676
F	22.652	11.793	13.247	8.486	54.340	64.374
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- R206 MRT COPYING RAW SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.134	0.274	0.002	0.339	0.160	0.144
008 WRITE NUMERALS	0.139	0.103	0.278	0.328	0.176	0.176
012 EQUV SETS:DOTS	0.245	0.088	0.320	-0.260	0.180	0.181
014 ORDRG:GEO SHAP	0.098	0.236	0.191	0.134	0.148	0.150

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.175	0.261	0.002	0.322	0.153	0.137
008 WRITE NUMERALS	0.168	0.125	0.335	0.395	0.213	0.213
012 EQUV SETS:DOTS	0.270	0.096	0.353	-0.287	0.198	0.199
014 ORDRG:GEO SHAP	0.259	0.567	0.414	0.369	0.408	0.412
RSQ	0.245	0.204	0.280	0.273	0.201	0.212
R	0.495	0.451	0.480	0.522	0.449	0.461
F	7.128	4.989	6.582	3.562	19.356	20.663
P	0.000	0.001	0.000	0.015	0.000	0.000

TABLE A7.3
CORRELATIONS WITHIN CELLS
OF END-OF-FIRST-GRADE SCALES AND END-OF-KINDERGARTEN SCALES
LONGITUDINAL SAMPLE

MATHEMATICS SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.01	0.01	0.08	0.06	0.09	0.07	0.15	0.03	-0.05	0.22	0.09	0.02	0.20	0.15	0.26	0.14
110 COUNT MEMS:PC	2		1.00	0.54	0.41	0.34	0.17	0.28	0.10	0.29	0.27	0.27	0.26	0.35	0.14	0.17	0.01	0.22
111 CNT MEMS:OBJS	3			1.00	0.55	0.41	0.02	0.36	-0.01	0.24	0.30	0.38	0.35	0.23	0.14	0.17	0.09	0.21
118 EQIV SETS:OBJS	4				1.00	0.77	0.11	0.37	0.11	0.33	0.29	0.36	0.33	0.36	0.21	0.14	0.19	0.29
119 EQIV SETS:DOTS	5					1.00	0.16	0.36	0.15	0.26	0.35	0.33	0.38	0.35	0.11	0.21	0.22	0.34
130 CLASFY(OVRLAP)	6						1.00	0.18	0.30	0.23	0.20	0.24	0.23	0.17	0.29	0.17	0.11	0.29
147 ORDRG:COMPOS	7							1.00	0.03	0.17	0.28	0.19	0.36	0.47	0.18	0.30	0.33	0.35
R201 WORD MEAN:MRT	8								1.00	0.44	0.33	0.38	0.37	0.15	0.42	0.19	0.40	0.43
R202 LISTENING:MRT	9									1.00	0.40	0.41	0.44	0.20	0.37	0.39	0.32	0.38
R203 MATCHING:MRT	10										1.00	0.45	0.45	0.28	0.16	0.18	0.22	0.37
R204 ALPHABET:MRT	11											1.00	0.61	0.32	0.42	0.37	0.36	0.33
R205 NUMBERS:MRT	12												1.00	0.37	0.30	0.30	0.24	0.53
R206 COPYING:MRT	13													1.00	0.23	0.11	0.33	0.31
M112 VOCB:WPSI SCA	14														1.00	0.48	0.48	0.55
M114 SIML:WPSI SCA	15															1.00	0.34	0.32
M117 P.CM:WPSI SCA	16																1.00	0.51
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21	22	23	24	25	26	27	28	29
104 GEO SHAP:IDFY	1	0.01	0.05	0.15	0.04	-0.00	0.12	-0.06	0.09	0.26	-0.18	-0.16	-0.08
110 COUNT MEMS:PC	2	0.15	0.08	0.09	0.12	0.30	0.31	0.04	-0.04	-0.03	-0.02	0.26	0.30
111 CNT MEMS:OBJS	3	0.31	-0.15	0.35	0.19	0.37	0.35	0.16	-0.05	-0.08	0.18	0.26	0.33
118 EQIV SETS:OBJS	4	0.34	0.01	0.31	0.23	0.28	0.27	0.16	-0.17	-0.07	0.14	0.06	0.34
119 EQIV SETS:DOTS	5	0.35	0.07	0.34	0.30	0.35	0.35	0.25	-0.11	-0.03	0.05	0.10	0.31
130 CLASFY(OVRLAP)	6	0.18	0.28	0.16	0.27	0.03	0.19	-0.02	0.20	0.08	-0.03	0.32	-0.01
147 ORDRG:COMPOS	7	0.35	0.17	0.27	0.33	0.33	0.31	0.23	0.14	0.07	0.03	0.33	0.22
R201 WORD MEAN:MRT	8	0.10	0.19	0.21	0.16	0.25	0.25	0.18	-0.21	-0.03	0.09	0.05	0.15
R202 LISTENING:MRT	9	0.31	0.13	0.42	0.25	0.33	0.32	0.09	-0.07	-0.04	0.06	0.20	0.24
R203 MATCHING:MRT	10	0.32	0.19	0.41	0.35	0.35	0.45	0.28	-0.07	0.03	0.10	0.28	0.28
R204 ALPHABET:MRT	11	0.41	0.20	0.41	0.44	0.40	0.53	0.25	-0.07	0.14	0.03	0.12	0.39
R205 NUMBERS:MRT	12	0.52	0.28	0.44	0.55	0.54	0.54	0.40	0.02	0.25	-0.05	0.35	0.37
R206 COPYING:MRT	13	0.25	0.24	0.16	0.37	0.37	0.34	0.14	-0.07	0.07	-0.04	0.20	0.22
M112 VOCB:WPSI SCA	14	0.23	0.12	0.27	0.31	0.30	0.30	0.11	0.06	0.24	0.05	-0.06	0.18
M114 SIML:WPSI SCA	15	0.49	0.22	0.34	0.38	0.41	0.43	0.13	0.08	0.23	-0.11	-0.00	0.28
M117 P.CM:WPSI SCA	16	0.16	0.13	0.29	0.37	0.31	0.42	0.18	-0.00	-0.03	0.13	-0.10	0.14
M120 BLKD:WPSI SCA	17	0.41	0.31	0.30	0.44	0.50	0.43	0.27	-0.07	0.12	0.15	0.14	0.26
306 PLACE VALUE	18	1.00	0.52	0.38	0.56	0.52	0.58	0.44	0.08	0.28	-0.02	0.29	0.47
307 NUMBER CMPARSN	19		1.00	0.16	0.48	0.18	0.25	0.25	0.05	0.26	-0.09	0.11	0.09
308 NUMBER LINE	20			1.00	0.30	0.32	0.43	0.19	-0.03	0.13	0.11	0.16	0.17
309 APPLICATION	21				1.00	0.45	0.54	0.38	0.01	0.20	-0.00	0.31	0.38
311 COMPUTE:ADD	22					1.00	0.61	0.29	0.06	0.13	-0.12	0.20	0.36
312 COMPUTE:SUBT	23						1.00	0.31	-0.07	0.16	0.00	0.21	0.48
313 COMPUTE:MULT	24							1.00	-0.05	0.09	0.13	0.39	0.34
321 IDFY TRIANGS	25								1.00	0.36	-0.29	-0.00	-0.18
322 IDFY RECTS	26									1.00	-0.37	-0.02	0.12
323 CURVD FIGS	27										1.00	0.11	0.01
328 CMPREHEN:GROUP	28											1.00	0.26
329 CMPREHEN:INDIV	29												1.00

* = 88 FOR CELL A1

(CONTINUED)

TABLE A7.3
(SECOND PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.20	0.16	0.15	0.04	-0.07	-0.14	0.28	0.32	0.14	0.15	0.23	-0.02	0.18	0.20	0.05	0.04
110 COUNT MEMS:PC	2		1.00	0.56	0.27	0.37	0.18	0.25	0.21	-0.02	0.13	0.04	0.32	0.12	0.16	-0.02	-0.02	0.22
111 CNT MEMS:OBJS	3			1.00	0.33	0.32	0.09	0.17	0.03	0.01	0.04	-0.02	0.20	0.23	0.01	0.16	0.09	0.29
118 EQIV SETS:OBJS	4				1.00	0.34	0.03	0.09	0.15	0.12	0.32	0.18	0.36	0.33	0.27	0.13	0.24	0.24
119 EQIV SETS:DOTS	5					1.00	0.38	0.25	0.17	0.13	0.30	0.14	0.32	0.17	0.26	0.04	0.31	0.21
130 CLASFY(OVRLAP)	6						1.00	0.36	0.37	0.20	0.17	0.10	0.17	0.05	0.39	0.28	0.15	0.25
147 ORDRG:COMPOS	7							1.00	0.33	0.18	0.31	0.18	0.33	0.29	0.34	0.06	0.35	0.42
R201 WORD MEAN:MRT	8								1.00	0.62	0.29	0.27	0.41	0.24	0.49	0.33	0.26	0.26
R202 LISTENING:MRT	9									1.00	0.36	0.28	0.32	0.19	0.38	0.44	0.26	0.24
R203 MATCHING:MRT	10										1.00	0.33	0.49	0.35	0.30	0.07	0.40	0.24
R204 ALPHABET:MRT	11											1.00	0.47	0.26	0.17	0.13	0.36	0.19
R205 NUMBERS:MRT	12												1.00	0.24	0.30	0.13	0.36	0.43
R206 COPYING:MRT	13													1.00	0.10	0.10	0.23	0.46
M112 VOCB:WPSI SCA	14														1.00	0.39	0.25	0.35
M114 SIML:WPSI SCA	15															1.00	-0.13	0.12
M117 P.CM:WPSI SCA	16																1.00	0.42
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21	22	23	24	25	26	27	28	29
104 GEO SHAP:IDFY	1	0.18	0.07	0.04	0.23	0.02	0.07	0.05	0.28	0.28	-0.14	0.20	-0.10
110 COUNT MEMS:PC	2	0.12	0.22	0.17	0.16	0.12	0.21	0.17	0.17	0.10	0.01	0.16	-0.04
111 CNT MEMS:OBJS	3	0.17	0.25	0.16	0.15	0.14	0.25	0.07	0.13	0.07	0.09	0.08	-0.08
118 EQIV SETS:OBJS	4	0.20	0.14	0.13	0.18	0.06	0.14	-0.01	0.21	0.14	-0.11	0.32	0.03
119 EQIV SETS:DOTS	5	0.21	0.25	0.09	0.16	0.10	0.30	0.03	0.05	0.08	0.01	0.17	0.10
130 CLASFY(OVRLAP)	6	0.21	0.35	0.21	0.18	0.16	0.22	0.25	0.01	0.23	0.15	-0.04	0.17
147 ORDRG:COMPOS	7	0.17	0.26	0.26	0.17	0.27	0.28	0.27	-0.10	0.04	0.12	0.09	0.21
R201 WORD MEAN:MRT	8	0.25	0.12	0.09	0.29	0.14	0.26	0.36	0.10	0.20	0.18	-0.00	0.29
R202 LISTENING:MRT	9	0.22	0.13	0.24	0.36	0.29	0.31	0.28	0.14	0.10	0.12	0.13	0.18
R203 MATCHING:MRT	10	0.26	0.24	0.26	0.22	0.18	0.24	0.24	0.07	0.07	0.03	0.33	0.01
R204 ALPHABET:MRT	11	0.41	0.15	0.26	0.35	0.17	0.37	0.16	0.12	0.00	0.28	0.33	0.20
R205 NUMBERS:MRT	12	0.51	0.18	0.30	0.51	0.43	0.45	0.38	0.40	0.14	0.10	0.42	0.04
R206 COPYING:MRT	13	0.20	0.07	0.28	0.09	0.21	0.32	0.23	-0.04	-0.03	0.21	0.19	0.13
M112 VOCB:WPSI SCA	14	0.35	0.25	0.28	0.17	0.01	0.11	0.34	0.27	0.39	-0.03	0.17	0.13
M114 SIML:WPSI SCA	15	0.31	0.15	0.30	0.20	0.09	0.29	0.33	0.13	0.20	0.04	0.16	0.21
M117 P.CM:WPSI SCA	16	0.22	0.16	0.10	0.27	0.09	0.26	0.05	0.00	-0.05	0.09	0.18	-0.05
M120 BLKD:WPSI SCA	17	0.47	0.23	0.39	0.35	0.31	0.36	0.32	0.26	0.26	-0.12	0.16	0.16
306 PLACE VALUE	18	1.00	0.22	0.31	0.46	0.31	0.35	0.34	0.27	0.34	0.00	0.35	0.17
307 NUMBER CMPARSN	19		1.00	0.22	0.20	0.21	0.32	0.17	0.23	0.20	-0.17	0.18	0.11
308 NUMBER LINE	20			1.00	0.13	0.40	0.36	0.14	0.08	0.01	0.15	0.25	0.04
309 APPLICATION	21				1.00	0.50	0.52	0.40	0.30	0.16	0.01	0.30	-0.01
311 COMPUTE:ADD	22					1.00	0.62	0.35	0.03	-0.07	0.24	0.26	0.11
312 COMPUTE:SUBT	23						1.00	0.42	0.10	-0.00	0.19	0.45	0.36
313 COMPUTE:MULT	24							1.00	0.11	0.10	0.15	0.29	0.32
321 IDFY TRIANGS	25								1.00	0.46	-0.35	0.33	-0.07
322 IDFY RECTS	26									1.00	-0.21	0.18	0.14
323 CURVD FIGS	27										1.00	-0.08	0.05
328 CMPREHEN:GROUP	28											1.00	0.29
329 CMPREHEN:INDIV	29												1.00

N = 76 FOR CELL B1

TABLE A7.3
(THIRD PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.19	0.03	0.19	-0.07	0.08	0.10	0.25	0.28	0.01	0.34	0.19	0.08	-0.01	0.26	0.00	0.15
110 COUNT MEMS:PC	2		1.00	0.52	0.46	0.37	0.06	0.14	0.09	0.30	0.34	0.21	0.40	0.24	0.10	0.12	-0.07	0.16
111 CNT MEMS:OBJS	3			1.00	0.45	0.48	0.05	0.16	0.08	0.23	0.25	0.20	0.31	0.33	0.02	-0.07	-0.03	0.17
118 EQIV SETS:OBJS	4				1.00	0.58	0.09	0.15	0.12	0.16	0.28	0.12	0.43	0.25	-0.07	-0.00	0.04	0.15
119 EQIV SETS:DOTS	5					1.00	0.03	0.13	0.09	0.01	0.26	0.29	0.30	0.26	-0.02	-0.04	-0.05	0.15
130 CLASFY(OVRLAP)	6						1.00	0.33	0.17	0.17	0.24	0.37	0.41	0.35	0.16	-0.11	0.25	-0.02
147 GROUP:COMPOS	7							1.00	0.28	0.27	0.31	0.09	0.47	0.41	0.22	-0.04	0.16	0.33
R201 WORD MEAN:MRT	8								1.00	0.51	0.24	0.24	0.34	0.24	0.33	0.01	0.10	0.13
R202 LISTENING:MRT	9									1.00	0.33	0.30	0.49	0.38	0.33	0.25	0.16	0.09
R203 MATCHING:MRT	10										1.00	0.22	0.54	0.36	0.16	0.17	0.14	0.18
R204 ALPHABET:MRT	11											1.00	0.35	0.23	0.09	0.24	0.05	0.09
R205 NUMBERS:MRT	12												1.00	0.45	0.21	0.10	0.02	0.13
R206 COPYING:MRT	13													1.00	0.12	0.06	0.29	0.33
M112 VOCB:UPSI SCA	14														1.00	0.26	0.28	0.01
M114 SIML:UPSI SCA	15															1.00	-0.03	0.01
M117 P.CM:UPSI SCA	16																1.00	0.20
M120 BLKD:UPSI SCA	17																	1.00

		18	19	20	21	22	23	24	25	26	27	28	29
104 GEO SHAP:IDFY	1	0.09	0.26	0.15	0.10	0.08	0.08	0.1		0.31	-0.15	0.21	0.14
110 COUNT MEMS:PC	2	0.38	0.35	0.19	0.18	0.18	0.08	0.1		0.20	-0.07	0.40	0.40
111 CNT MEMS:OBJS	3	0.26	0.20	0.16	0.15	0.25	0.26	0.19	-0.0	0.17	-0.11	0.33	0.40
118 EQIV SETS:OBJS	4	0.28	0.27	0.24	0.22	0.25	0.29	0.26	0.13	0.34	-0.08	0.19	0.30
119 EQIV SETS:DOTS	5	0.30	0.25	0.31	0.28	0.42	0.38	0.25	0.10	0.10	-0.04	0.39	0.36
130 CLASFY(OVRLAP)	6	0.10	0.45	0.30	0.25	0.07	0.32	0.06	0.17	0.13	-0.05	0.31	0.18
147 GROUP:COMPOS	7	0.36	0.46	0.34	0.32	0.29	0.30	0.19	-0.03	0.26	-0.22	0.23	0.33
R201 WORD MEAN:MRT	8	0.15	0.15	0.19	0.26	0.14	0.27	0.10	-0.10	0.18	-0.14	0.30	0.29
R202 LISTENING:MRT	9	0.32	0.22	0.13	0.42	0.15	0.21	0.19	-0.04	0.29	-0.08	0.33	0.26
R203 MATCHING:MRT	10	0.46	0.58	0.39	0.47	0.26	0.48	0.31	0.29	0.25	-0.44	0.36	0.42
R204 ALPHABET:MRT	11	0.23	0.28	0.16	0.23	0.17	0.22	0.01	0.14	0.26	-0.12	0.35	0.14
R205 NUMBERS:MRT	12	0.48	0.61	0.34	0.51	0.31	0.50	0.27	0.26	0.40	-0.27	0.51	0.40
R206 COPYING:MRT	13	0.39	0.31	0.24	0.45	0.38	0.41	0.25	-0.05	0.23	-0.04	0.30	0.34
M112 VOCB:UPSI SCA	14	0.22	0.06	0.15	0.23	0.00	0.02	0.01	-0.03	-0.06	-0.05	0.26	0.21
M114 SIML:UPSI SCA	15	0.09	0.00	-0.03	0.17	-0.02	0.01	0.07	0.02	0.03	-0.09	-0.02	-0.06
M117 P.CM:UPSI SCA	16	0.01	-0.04	0.22	0.06	-0.13	-0.03	0.12	0.08	-0.04	-0.06	0.10	0.08
M120 BLKD:UPSI SCA	17	0.41	0.10	0.15	0.20	0.37	0.23	0.20	-0.06	0.12	-0.14	0.15	0.41
306 PLACE VALUE	18	1.00	0.36	0.38	0.53	0.47	0.37	0.25	0.15	0.32	-0.22	0.40	0.36
307 NUMBER COMPARSN	19		1.00	0.47	0.42	0.17	0.32	0.26	0.29	0.36	-0.42	0.45	0.42
308 NUMBER LINE	20			1.00	0.26	0.27	0.47	0.13	0.16	0.21	-0.25	0.28	0.53
309 APPLICATION	21				1.00	0.40	0.46	0.28	0.25	0.18	-0.12	0.45	0.39
311 COMPUTE:ADD	22					1.00	0.56	0.20	0.05	0.18	-0.09	0.31	0.42
312 COMPUTE:SUBT	23						1.00	0.23	0.07	0.25	-0.17	0.33	0.47
313 COMPUTE:MULT	24							1.00	0.15	0.10	-0.15	0.36	0.25
321 IDFY TRIANGS	25								1.00	0.38	-0.49	0.33	0.24
322 IDFY RECTS	26									1.00	-0.56	0.24	0.39
323 CURVD FIGS	27										1.00	-0.20	-0.30
328 COMPREHEN:GROUP	28											1.00	0.48
329 COMPREHEN:INDIV	29												1.00

N = 85 FOR CELL C1

TABLE A7.3
(FOURTH PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.07	-0.15	-0.02	-0.04	0.18	0.33	0.19	0.34	0.06	0.17	-0.04	0.03	0.15	0.25	0.23	0.11
110 COUNT MEMS:PC	2		1.00	0.60	0.22	0.29	0.52	0.36	0.15	0.22	0.34	0.26	0.38	0.45	0.22	0.14	0.32	0.24
111 CNT MEMS:OBJS	3			1.00	0.29	0.22	0.29	0.10	0.13	0.14	0.13	0.12	0.37	0.22	0.26	-0.04	0.11	0.19
118 EQIV SETS:OBJS	4				1.00	0.53	-0.07	0.13	0.14	0.17	0.17	0.19	0.31	0.10	0.13	-0.04	0.14	0.14
119 EQIV SETS:COTS	5					1.00	0.11	0.27	0.18	0.14	0.29	0.26	0.23	0.03	0.03	0.03	0.33	-0.05
130 CLASFY(OVRLAP)	6						1.00	0.31	0.06	0.10	0.02	0.09	0.20	0.21	0.28	0.27	0.28	0.37
147 ORDRG:COMPOS	7							1.00	0.27	0.25	0.33	0.36	0.31	0.12	0.28	0.13	0.38	0.20
R201 WORD MEAN:MRT	8								1.00	0.54	0.13	0.21	0.41	0.27	0.40	0.37	0.18	0.03
R202 LISTENING:MRT	9									1.00	0.15	0.21	0.38	0.23	0.49	0.43	0.39	0.21
R203 MATCHING:MRT	10										1.00	0.24	0.41	0.33	-0.09	0.12	0.36	0.14
R204 ALPHABET:MRT	11											1.00	0.52	0.10	0.26	0.19	0.20	0.05
R205 NUMBERS:MRT	12												1.00	0.35	0.16	0.23	0.41	0.23
R206 COPYING:MRT	13													1.00	0.16	0.33	0.12	0.29
M112 VOCB:WPSI SCA	14														1.00	0.35	0.07	0.18
M114 SIML:WPSI SCA	15															1.00	0.18	0.16
M117 P.CM:WPSI SCA	16																1.00	0.40
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21	22	23	24	25	26	27	28	29
104 GEO SHAP:IDFY	1	-0.07	0.10	0.31	0.24	0.11	-0.03	0.11	0.19	0.29	-0.04	0.23	-0.07
110 COUNT MEMS:PC	2	0.21	0.45	0.42	0.38	0.45	0.31	0.27	0.28	0.22	-0.06	0.41	0.14
111 CNT MEMS:OBJS	3	0.46	0.35	0.23	0.31	0.34	0.34	0.18	0.22	0.13	-0.09	0.42	-0.04
118 EQIV SETS:OBJS	4	0.06	0.07	0.28	0.33	0.15	0.17	0.11	-0.13	0.11	0.10	0.20	-0.09
119 EQIV SETS:COTS	5	0.06	0.19	-0.03	0.34	0.14	0.04	0.11	0.17	0.19	-0.27	0.25	-0.12
130 CLASFY(OVRLAP)	6	0.17	0.57	0.33	0.22	0.38	0.23	0.23	0.29	0.24	-0.13	0.26	0.25
147 ORDRG:COMPOS	7	0.29	0.53	0.40	0.47	0.17	0.06	0.15	0.22	0.40	-0.15	0.38	0.05
R201 WORD MEAN:MRT	8	0.16	0.21	0.17	0.22	0.08	0.17	0.07	0.10	0.07	-0.14	0.25	0.15
R202 LISTENING:MRT	9	0.30	0.41	0.34	0.54	0.35	0.35	0.30	0.16	0.27	-0.04	0.47	0.10
R203 MATCHING:MRT	10	0.14	0.02	0.17	0.26	0.18	0.13	0.22	0.13	0.16	0.03	0.35	0.09
R204 ALPHABET:MRT	11	0.42	0.33	0.26	0.47	0.28	0.10	0.25	0.08	0.01	-0.04	0.26	0.13
R205 NUMBERS:MRT	12	0.48	0.41	0.26	0.58	0.42	0.55	0.51	0.14	0.21	0.06	0.53	0.25
R206 COPYING:MRT	13	0.28	0.23	0.35	0.12	0.40	0.34	0.44	0.04	0.29	0.20	0.27	0.12
M112 VOCB:WPSI SCA	14	0.32	0.44	0.28	0.30	0.19	0.17	0.06	0.17	0.11	-0.17	0.32	-0.05
M114 SIML:WPSI SCA	15	0.15	0.21	0.41	0.37	0.36	0.35	0.28	0.22	0.09	0.11	0.44	0.40
M117 P.CM:WPSI SCA	16	0.25	0.38	0.47	0.50	0.30	0.29	0.25	0.15	0.30	-0.16	0.36	0.06
M120 BLKD:WPSI SCA	17	0.42	0.37	0.40	0.23	0.29	0.33	0.20	0.05	0.31	0.08	0.35	0.30
306 PLACE VALUE	18	1.00	0.54	0.37	0.54	0.45	0.44	0.37	-0.05	0.17	0.05	0.44	0.20
307 NUMBER CMPARSN	19		1.00	0.43	0.61	0.46	0.37	0.19	0.24	0.33	-0.17	0.43	0.35
308 NUMBER LINE	20			1.00	0.50	0.40	0.34	0.28	0.02	0.29	0.07	0.41	0.11
309 APPLICATION	21				1.00	0.49	0.49	0.37	0.11	0.20	-0.04	0.61	0.19
311 COMPUTE:ADD	22					1.00	0.62	0.47	0.06	0.18	-0.01	0.39	0.27
312 COMPUTE:SUBT	23						1.00	0.38	0.22	0.33	0.00	0.40	0.29
313 COMPUTE:MULT	24							1.00	0.02	0.22	0.13	0.54	0.01
321 IDFY TRIANGS	25								1.00	0.58	-0.53	0.35	-0.07
322 IDFY RECTS	26									1.00	-0.40	0.31	0.0
323 CURVD FIGS	27										1.00	-0.18	0.23
328 CMPREHEN:GROUP	28											1.00	0.06
329 CMPREHEN:INDIV	29												1.00

N = 50 FOR CELL D1

(CONTINUED)

TABLE A7.3
(FIFTH PAGE)

RAVEN SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.01	-0.04	0.05	0.02	0.13	0.10	0.22	0.06	-0.06	0.16	0.06	0.03	0.18	0.15	0.27	0.17
110 COUNT MEMS:PC	2		1.00	0.56	0.40	0.32	0.16	0.23	0.08	0.26	0.27	0.26	0.25	0.33	0.17	0.16	0.03	0.22
111 CNT MEMS:OBJS	3			1.00	0.55	0.41	0.05	0.36	0.04	0.27	0.27	0.35	0.34	0.26	0.13	0.19	0.10	0.21
118 EQIV SETS:OBJS	4				1.00	0.75	0.11	0.33	0.12	0.31	0.28	0.36	0.33	0.33	0.23	0.15	0.22	0.30
119 EQIV SETS:DOTS	5					1.00	0.16	0.34	0.15	0.23	0.31	0.35	0.39	0.34	0.12	0.22	0.20	0.31
130 CLASFY(OVRLAP)	6						1.00	0.18	0.25	0.21	0.19	0.26	0.22	0.19	0.31	0.15	0.08	0.26
147 ORORG:COMPOS	7							1.00	0.01	0.14	0.26	0.16	0.34	0.47	0.22	0.28	0.34	0.36
R201 WORD MEAN:MRT	8								1.00	0.42	0.37	0.42	0.39	0.14	0.46	0.16	0.38	0.41
R202 LISTENING:MRT	9									1.00	0.42	0.41	0.43	0.17	0.41	0.37	0.33	0.41
R203 MATCHING:MRT	10										1.00	0.41	0.45	0.28	0.17	0.20	0.23	0.36
R204 ALPHABET:MRT	11											1.00	0.60	0.33	0.42	0.38	0.36	0.28
R205 NUMBERS:MRT	12												1.00	0.37	0.29	0.29	0.24	0.49
R206 COPYING:MRT	13													1.00	0.29	0.11	0.34	0.37
M112 VOCB:WPSI SCA	14														1.00	0.49	0.46	0.53
M114 SIML:WPSI SCA	15															1.00	0.36	0.29
M117 P.CM:WPSI SCA	16																1.00	0.50
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21
104 GEO SHAP:IDFY	1	0.00	0.17	0.26	0.20
110 COUNT MEMS:PC	2	0.19	0.22	-0.05	0.17
111 CNT MEMS:OBJS	3	-0.02	0.09	-0.03	0.03
118 EQIV SETS:OBJS	4	0.12	0.22	0.08	0.20
119 EQIV SETS:DOTS	5	-0.03	0.25	0.14	0.18
130 CLASFY(OVRLAP)	6	0.16	0.34	0.14	0.30
147 ORORG:COMPOS	7	0.17	0.13	0.14	0.20
R201 WORD MEAN:MRT	8	0.15	0.29	0.27	0.33
R202 LISTENING:MRT	9	0.21	0.35	0.15	0.33
R203 MATCHING:MRT	10	0.22	0.25	0.10	0.26
R204 ALPHABET:MRT	11	0.10	0.26	0.30	0.30
R205 NUMBERS:MRT	12	0.26	0.28	0.25	0.36
R206 COPYING:MRT	13	0.42	0.32	0.29	0.46
M112 VOCB:WPSI SCA	14	0.10	0.14	0.27	0.23
M114 SIML:WPSI SCA	15	-0.16	0.02	0.20	0.04
M117 P.CM:WPSI SCA	16	0.08	0.12	0.35	0.24
M120 BLKD:WPSI SCA	17	0.22	0.35	0.33	0.41
M201 SET A:RAVEN	18	1.00	0.39	0.09	0.64
M202 SET AB:RAVEN	19		1.00	0.41	0.87
M203 SET B:RAVEN	20			1.00	0.67
M204 TOTAL:RAVEN	21				1.00

N = 86 FOR CELL A1

(CONTINUED)

TABLE A7.3
(SIXTH PAGE)

RAVEN SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY		1.00	0.18	0.15	0.13	0.03	-0.08	-0.14	0.28	0.30	0.13	0.13	0.23	-0.04	0.20	0.20	0.06	-0.00
110 COUNT MEMS:PC			1.00	0.57	0.28	0.36	0.19	0.26	0.21	0.00	0.14	0.06	0.33	0.13	0.18	-0.00	0.02	0.23
111 CNT MEMS:OBJS	3			1.00	0.33	0.30	0.11	0.20	0.03	0.03	0.05	0.01	0.21	0.26	-0.01	0.19	0.07	0.30
118 EQIV SETS:OBJS	4				1.00	0.34	0.04	0.10	0.15	0.12	0.32	0.20	0.36	0.34	0.25	0.14	0.22	0.25
119 EQIV SETS:DOTS	5					1.00	0.40	0.27	0.16	0.13	0.32	0.17	0.32	0.20	0.20	0.06	0.24	0.22
130 CLASFY(OVRLAP)	6						1.00	0.37	0.38	0.21	0.17	0.10	0.17	0.05	0.39	0.28	0.17	0.26
147 ORDRG:COMPOS	7							1.00	0.34	0.19	0.30	0.18	0.33	0.29	0.36	0.07	0.37	0.43
R201 WORD MEAN:MRT	8								1.00	0.62	0.28	0.28	0.43	0.24	0.50	0.34	0.28	0.25
R202 LISTENING:MRT	9									1.00	0.37	0.29	0.33	0.20	0.40	0.46	0.30	0.26
R203 MATCHING:MRT	10										1.00	0.33	0.49	0.34	0.32	0.08	0.42	0.25
R204 ALPHABET:MRT	11											1.00	0.47	0.25	0.21	0.13	0.40	0.21
R205 NUMBERS:MRT	12												1.00	0.23	0.36	0.15	0.42	0.42
R206 COPYING:MRT	13													1.00	0.12	0.09	0.25	0.47
M112 VOCB:WPSI SCA	14														1.00	0.45	0.33	0.32
M114 SIML:WPSI SCA	15															1.00	-0.03	0.13
M117 P.CM:WPSI SCA	16																1.00	0.40
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21
104 GEO SHAP:IDFY	1	0.11	-0.07	0.16	0.08
110 COUNT MEMS:PC	2	-0.00	0.07	0.02	0.04
111 CNT MEMS:OBJS	3	0.13	0.04	0.16	0.14
118 EQIV SETS:OBJS	4	-0.10	0.19	0.32	0.20
119 EQIV SETS:DOTS	5	0.07	0.21	0.13	0.19
130 CLASFY(OVRLAP)	6	0.25	0.34	0.15	0.33
147 ORDRG:COMPOS	7	0.25	0.32	0.20	0.35
R201 WORD MEAN:MRT	8	0.30	0.21	0.27	0.34
R202 LISTENING:MRT	9	0.16	0.20	0.28	0.29
R203 MATCHING:MRT	10	0.19	0.16	0.25	0.27
R204 ALPHABET:MRT	11	0.12	0.12	0.09	0.15
R205 NUMBERS:MRT	12	0.04	0.23	0.25	0.25
R206 COPYING:MRT	13	0.12	0.15	0.38	0.29
M112 VOCB:WPSI SCA	14	0.20	0.31	0.28	0.35
M114 SIML:WPSI SCA	15	-0.05	0.20	0.15	0.15
M117 P.CM:WPSI SCA	16	0.12	0.20	0.22	0.24
M120 BLKD:WPSI SCA	17	0.31	0.44	0.57	0.59
M201 SET A:RAVEN	18	1.00	0.27	0.19	0.61
M202 SET AB:RAVEN	19		1.00	0.50	0.83
M203 SET B:RAVEN	20			1.00	0.77
M204 TOTAL:RAVEN	21				1.00

N = 78 FOR CELL B1

(CONTINUED)

TABLE A7.3
(SEVENTH PAGE)

RAVEN SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.25	0.09	0.19	-0.02	0.14	0.13	0.29	0.28	0.05	0.35	0.25	0.12	-0.03	0.20	0.03	0.16
110 COUNT MEMS:PC	2		1.00	0.55	0.43	0.39	0.14	0.19	0.11	0.31	0.36	0.22	0.45	0.28	0.11	0.10	-0.06	0.20
111 CNT MEMS:OBJS	3			1.00	0.44	0.51	0.07	0.17	0.10	0.20	0.24	0.17	0.30	0.33	0.03	-0.11	-0.02	0.18
118 EQIV SETS:OBJS	4				1.00	0.57	0.08	0.14	0.09	0.14	0.27	0.12	0.40	0.23	-0.08	0.00	0.03	0.12
119 EQIV SETS:DOTS	5					1.00	0.09	0.17	0.07	0.00	0.25	0.29	0.31	0.26	-0.02	-0.03	-0.05	0.16
130 CLASFY(OVRLAP)	6						1.00	0.33	0.22	0.16	0.23	0.35	0.40	0.36	0.21	-0.14	0.26	0.04
147 ORDRG:COMPOS	7							1.00	0.33	0.28	0.35	0.09	0.51	0.43	0.24	-0.05	0.17	0.36
R201 WORD MEAN:MRT	8								1.00	0.52	0.21	0.24	0.33	0.29	0.40	0.03	0.10	0.17
R202 LISTENING:MRT	9									1.00	0.32	0.29	0.46	0.39	0.40	0.26	0.15	0.14
R203 MATCHING:MRT	10										1.00	0.23	0.53	0.36	0.24	0.23	0.10	0.22
R204 ALPHABET:MRT	11											1.00	0.35	0.23	0.13	0.26	0.04	0.13
R205 NUMBERS:MRT	12												1.00	0.46	0.29	0.15	-0.02	0.21
R206 COPYING:MRT	13													1.00	0.20	0.06	0.28	0.38
M112 VOCB:WPSI SCA	14														1.00	0.25	0.32	0.07
M114 SIML:WPSI SCA	15															1.00	-0.04	0.04
M117 P.CM:WPSI SCA	16																1.00	0.20
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21
104 GEO SHAP:IDFY	1	0.03	0.09	0.23	0.15
110 COUNT MEMS:PC	2	0.20	0.10	0.23	0.22
111 CNT MEMS:OBJS	3	0.21	0.00	0.14	0.13
118 EQIV SETS:OBJS	4	0.07	-0.10	0.09	0.01
119 EQIV SETS:DOTS	5	0.20	0.03	0.10	0.12
130 CLASFY(OVRLAP)	6	0.16	0.30	0.23	0.30
147 ORDRG:COMPOS	7	0.34	0.39	0.43	0.49
R201 WORD MEAN:MRT	8	0.16	0.31	0.30	0.33
R202 LISTENING:MRT	9	0.15	0.31	0.40	0.37
R203 MATCHING:MRT	10	0.23	0.29	0.36	0.37
R204 ALPHABET:MRT	11	0.01	0.21	0.08	0.14
R205 NUMBERS:MRT	12	0.24	0.35	0.39	0.42
R206 COPYING:MRT	13	0.29	0.28	0.34	0.38
M112 VOCB:WPSI SCA	14	0.23	0.30	0.22	0.32
M114 SIML:WPSI SCA	15	-0.06	0.09	0.08	0.05
M117 P.CM:WPSI SCA	16	0.21	0.38	0.27	0.38
M120 BLKD:WPSI SCA	17	0.35	0.29	0.25	0.37
M201 SET A:RAVEN	18	1.00	0.40	0.36	0.69
M202 SET AB:RAVEN	19		1.00	0.52	0.85
M203 SET B:RAVEN	20			1.00	0.80
M204 TOTAL:RAVEN	21				1.00

N = 86 FOR CELL C1

(CONTINUED)

TABLE A7.3
(EIGHTH PAGE)

RAVEN SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.08	-0.18	-0.02	-0.03	0.24	0.33	-0.00	0.19	0.06	0.04	-0.13	-0.06	0.02	0.09	0.26	0.29
110 COUNT MEMS:PC	2		1.00	0.58	0.09	0.23	0.63	0.36	0.18	0.19	0.29	0.25	0.38	0.43	0.17	0.21	0.36	0.22
111 CNT MEMS:OBJS	3			1.00	0.19	0.28	0.31	0.17	0.10	0.08	0.12	0.26	0.44	0.22	0.27	-0.08	0.15	0.26
118 EQIV SETS:OBJS	4				1.00	0.53	-0.06	0.14	0.15	0.04	0.16	0.31	0.31	0.07	0.12	0.00	0.22	0.12
119 EQIV SETS:DOTS	5					1.00	0.12	0.27	0.17	0.08	0.22	0.25	0.21	-0.10	0.12	0.03	0.25	-0.09
130 CLASFY(OVRLAP)	6						1.00	0.24	0.10	0.13	0.03	0.06	0.16	0.18	0.27	0.29	0.23	0.32
147 ORDRG:COMPOS	7							1.00	0.30	0.38	0.29	0.42	0.39	0.15	0.36	0.15	0.30	0.26
R201 WORD MEAN:MRT	8								1.00	0.53	0.17	0.15	0.47	0.19	0.26	0.34	0.19	0.04
R202 LISTENING:MRT	9									1.00	0.32	0.21	0.38	-0.00	0.44	0.43	0.33	0.15
R203 MATCHING:MRT	10										1.00	0.21	0.48	0.33	-0.03	0.28	0.33	0.01
R204 ALPHABET:MRT	11											1.00	0.54	0.06	0.34	0.19	0.15	0.09
R205 NUMBERS:MRT	12												1.00	0.25	0.20	0.28	0.35	0.19
R206 COPYING:MRT	13													1.00	0.03	0.35	0.08	0.24
M112 VOCB:WPSI SCA	14														1.00	0.20	0.04	0.20
M114 SIML:WPSI SCA	15															1.00	0.24	0.15
M117 P.CM:WPSI SCA	16																1.00	0.40
M120 BLKD:WPSI SCA	17																	1.00

		18	19	20	21
104 GEO SHAP:IDFY	1	0.24	0.22	0.04	0.20
110 COUNT MEMS:PC	2	0.40	0.40	0.37	0.47
111 CNT MEMS:OBJS	3	0.39	0.45	0.50	0.54
118 EQIV SETS:OBJS	4	0.22	0.34	0.14	0.30
119 EQIV SETS:DOTS	5	0.15	0.19	-0.04	0.13
130 CLASFY(OVRLAP)	6	0.09	0.22	0.25	0.24
147 ORDRG:COMPOS	7	0.16	0.44	0.11	0.31
R201 WORD MEAN:MRT	8	0.06	0.18	-0.02	0.10
R202 LISTENING:MRT	9	0.28	0.43	0.21	0.39
R203 MATCHING:MRT	10	0.32	0.24	0.05	0.24
R204 ALPHABET:MRT	11	0.00	0.40	0.23	0.29
R205 NUMBERS:MRT	12	0.14	0.48	0.29	0.40
R206 COPYING:MRT	13	0.13	0.14	0.25	0.20
M112 VOCB:WPSI SCA	14	0.09	0.31	0.32	0.31
M114 SIML:WPSI SCA	15	0.21	0.20	0.27	0.27
M117 P.CM:WPSI SCA	16	0.49	0.51	0.23	0.50
M120 BLKD:WPSI SCA	17	0.31	0.56	0.34	0.51
M201 SET A:RAVEN	18	1.00	0.52	0.46	0.75
M202 SET AB:RAVEN	19		1.00	0.59	0.90
M203 SET B:RAVEN	20			1.00	0.82
M204 TOTAL:RAVEN	21				1.00

N = 44 FOR CELL D1

(CONTINUED)

TABLE A7.3
(NINTH PAGE)

SAT SCALE

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.00	-0.01	0.06	0.03	0.09	0.08	0.17	0.04	-0.05	0.17	0.08	0.03	0.21	0.15	0.24	0.15
110 COUNT MEMS:PC	2		1.00	0.54	0.41	0.33	0.17	0.27	0.10	0.28	0.27	0.27	0.27	0.34	0.14	0.17	0.02	0.22
111 CNT MEMS:OBJS	3			1.00	0.55	0.42	0.03	0.35	-0.02	0.23	0.29	0.39	0.35	0.23	0.13	0.17	0.08	0.20
118 EQIV SETS:OBJS	4				1.00	0.75	0.10	0.35	0.11	0.32	0.29	0.37	0.34	0.34	0.20	0.15	0.20	0.28
119 EQIV SETS:DOTS	5					1.00	0.16	0.35	0.13	0.23	0.33	0.37	0.39	0.34	0.10	0.20	0.19	0.29
130 CLASFY(OVRLAP)	6						1.00	0.19	0.29	0.23	0.18	0.23	0.22	0.18	0.28	0.16	0.10	0.28
147 ORDRG:COMPCS	7							1.00	0.03	0.17	0.26	0.17	0.34	0.48	0.17	0.28	0.31	0.34
R201 WORD MEAN:MRT	8								1.00	0.44	0.34	0.35	0.37	0.15	0.43	0.19	0.39	0.43
R202 LISTENING:MRT	9									1.00	0.40	0.38	0.42	0.20	0.37	0.38	0.31	0.38
R203 MATCHING:MRT	10										1.00	0.43	0.46	0.26	0.17	0.19	0.22	0.36
R204 ALPHABET:MRT	11											1.00	0.61	0.30	0.41	0.36	0.33	0.28
R205 NUMBERS:MRT	12												1.00	0.35	0.30	0.31	0.23	0.50
R206 COPYING:MRT	13													1.00	0.23	0.10	0.30	0.30
M112 VOCB:WPSI SCA	14														1.00	0.48	0.46	0.54
M114 SIML:WPSI SCA	15															1.00	0.35	0.32
M117 P.CM:WPSI SCA	16																1.00	0.51
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.21
110 COUNT MEMS:PC	2	0.14
111 CNT MEMS:OBJS	3	0.23
118 EQIV SETS:OBJS	4	0.20
119 EQIV SETS:DOTS	5	0.16
130 CLASFY(OVRLAP)	6	0.03
147 ORDRG:COMPCS	7	0.30
R201 WORD MEAN:MRT	8	0.22
R202 LISTENING:MRT	9	0.37
R203 MATCHING:MRT	10	0.23
R204 ALPHABET:MRT	11	0.51
R205 NUMBERS:MRT	12	0.54
R206 COPYING:MRT	13	0.34
M112 VOCB:WPSI SCA	14	0.42
M114 SIML:WPSI SCA	15	0.36
M117 P.CM:WPSI SCA	16	0.31
M120 BLKD:WPSI SCA	17	0.31
A209 ART:SAT TOTAL	18	1.00

N = 91 FOR CELL A1

(CONTINUED)

TABLE A7.3
(TENTH PAGE)

SAT SCALE

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.18	0.14	0.13	0.02	-0.07	-0.13	0.28	0.30	0.14	0.14	0.24	-0.03	0.18	0.20	0.05	0.00
110 COUNT MEMS:PC	2		1.00	0.57	0.28	0.37	0.19	0.26	0.21	0.01	0.15	0.06	0.33	0.13	0.17	-0.01	0.01	0.24
111 CNT MEMS:OBJS	3			1.00	0.33	0.33	0.10	0.19	0.02	0.04	0.05	-0.00	0.20	0.24	0.00	0.15	0.08	0.31
118 EQIV SETS:CBJS	4				1.00	0.35	0.04	0.09	0.15	0.12	0.31	0.19	0.35	0.33	0.25	0.13	0.23	0.25
119 EQIV SETS:DOTS	5					1.00	0.38	0.25	0.15	0.13	0.30	0.15	0.30	0.18	0.21	0.02	0.25	0.24
130 CLASFY(OVRLAP)	6						1.00	0.37	0.37	0.21	0.18	0.11	0.18	0.06	0.38	0.28	0.15	0.26
147 ORDRG:COMPOS	7							1.00	0.33	0.20	0.31	0.19	0.34	0.30	0.34	0.07	0.34	0.43
R201 WORD MEAN:MRT	8								1.00	0.61	0.27	0.27	0.41	0.23	0.50	0.34	0.29	0.24
R202 LISTENING:MRT	9									1.00	0.38	0.30	0.34	0.20	0.38	0.45	0.28	0.27
R203 MATCHING:MRT	10										1.00	0.35	0.51	0.35	0.28	0.09	0.37	0.27
R204 ALPHABET:MRT	11											1.00	0.48	0.27	0.18	0.14	0.35	0.21
R205 NUMBERS:MRT	12												1.00	0.24	0.32	0.15	0.37	0.43
R206 COPYING:MRT	13													1.00	0.10	0.10	0.21	0.46
M112 VOCB:WPSI SCA	14														1.00	0.43	0.35	0.30
M114 SIML:WPSI SCA	15															1.00	-0.04	0.10
M117 P.CM:WPSI SCA	16																1.00	0.37
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.12
110 COUNT MEMS:PC	2	0.18
111 CNT MEMS:OBJS	3	0.12
118 EQIV SETS:OBJS	4	0.14
119 EQIV SETS:DOTS	5	0.17
130 CLASFY(OVRLAP)	6	0.15
147 ORDRG:COMPOS	7	0.30
R201 WORD MEAN:MRT	8	0.14
R202 LISTENING:MRT	9	0.22
R203 MATCHING:MRT	10	0.36
R204 ALPHABET:MRT	11	0.56
R205 NUMBERS:MRT	12	0.48
R206 COPYING:MRT	13	0.24
M112 VOCB:WPSI SCA	14	0.16
M114 SIML:WPSI SCA	15	0.17
M117 P.CM:WPSI SCA	16	0.19
M120 BLKD:WPSI SCA	17	0.29
A209 #RT:SAT TOTAL	18	1.00

N = 80 FOR CELL B1

(CONTINUED)

TABLE A7.3
(ELEVENTH PAGE)

SAT SCALE

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.24	0.08	0.19	-0.03	0.13	0.13	0.26	0.27	0.02	0.33	0.21	0.11	-0.02	0.21	0.02	0.16
110 COUNT MEMS:PC	2		1.00	0.54	0.44	0.40	0.12	0.17	0.13	0.31	0.36	0.21	0.43	0.28	0.10	0.08	-0.04	0.20
111 CNT MEMS:OBJS	3			1.00	0.44	0.50	0.09	0.18	0.11	0.22	0.26	0.19	0.32	0.34	0.01	-0.10	-0.01	0.18
118 EQIV SETS:OBJS	4				1.00	0.57	0.08	0.14	0.11	0.14	0.27	0.12	0.39	0.23	-0.08	-0.01	0.03	0.12
119 EQIV SETS:DOTS	5					1.00	0.07	0.15	0.10	0.01	0.26	0.28	0.30	0.25	-0.03	-0.06	-0.03	0.16
130 CLASFY(OVRLAP)	6						1.00	0.35	0.21	0.19	0.26	0.37	0.44	0.38	0.17	-0.12	0.26	0.04
147 ORDRG:COMPOS	7							1.00	0.30	0.29	0.33	0.10	0.50	0.44	0.23	-0.03	0.17	0.36
R201 WORD MEAN:MRT	8								1.00	0.52	0.25	0.23	0.34	0.29	0.35	-0.01	0.13	0.17
R202 LISTENING:MRT	9									1.00	0.34	0.31	0.48	0.40	0.36	0.25	0.17	0.14
R203 MATCHING:MRT	10										1.00	0.24	0.56	0.38	0.17	0.19	0.14	0.22
R204 ALPHABET:MRT	11											1.00	0.37	0.24	0.10	0.26	0.05	0.13
R205 NUMBERS:MRT	12												1.00	0.48	0.22	0.12	0.02	0.21
R206 COPYING:MRT	13													1.00	0.16	0.05	0.29	0.38
M112 VOCB:WPSI SCA	14														1.00	0.26	0.29	0.06
M114 SIML:WPSI SCA	15															1.00	-0.06	0.04
M117 P.CM:WPSI SCA	16																1.00	0.20
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.33
110 COUNT MEMS:PC	2	0.41
111 CNT MEMS:OBJS	3	0.29
118 EQIV SETS:OBJS	4	0.45
119 EQIV SETS:DOTS	5	0.35
130 CLASFY(OVRLAP)	6	0.26
147 ORDRG:COMPOS	7	0.39
R201 WORD MEAN:MRT	8	0.38
R202 LISTENING:MRT	9	0.43
R203 MATCHING:MRT	10	0.53
R204 ALPHABET:MRT	11	0.48
R205 NUMBERS:MRT	12	0.62
R206 COPYING:MRT	13	0.44
M112 VOCB:WPSI SCA	14	0.09
M114 SIML:WPSI SCA	15	0.15
M117 P.CM:WPSI SCA	16	0.08
M120 BLKD:WPSI SCA	17	0.34
A209 ART:SAT TOTAL	18	1.00

N = 88 FOR CELL C1

(CONTINUED)

TABLE A7.3
(TWELFTH PAGE)

SAT SCALE

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.09	-0.14	-0.03	-0.03	0.19	0.27	0.18	0.31	0.01	0.13	-0.06	0.02	0.11	0.21	0.21	0.13
110 COUNT MEMS:PC	2		1.00	0.56	0.21	0.27	0.52	0.29	0.17	0.22	0.31	0.21	0.36	0.44	0.13	0.15	0.32	0.22
111 CNT MEMS:OBJS	3			1.00	0.29	0.23	0.24	0.12	0.09	0.10	0.10	0.12	0.33	0.21	0.24	-0.08	0.12	0.23
118 EQIV SETS:OBJS	4				1.00	0.49	-0.09	0.11	0.11	0.11	0.16	0.19	0.29	0.14	0.09	-0.04	0.17	0.15
119 EQIV SETS:DOTS	5					1.00	0.10	0.25	0.15	0.13	0.26	0.25	0.20	-0.01	0.08	-0.01	0.28	-0.02
130 CLASFY(OVRLAP)	6						1.00	0.24	0.10	0.12	-0.01	0.07	0.19	0.16	0.25	0.29	0.23	0.30
147 ORDRG:COMPOS	7							1.00	0.26	0.27	0.27	0.41	0.35	0.11	0.28	0.13	0.37	0.23
R201 WORD MEAN:MRT	8								1.00	0.55	0.12	0.19	0.43	0.25	0.33	0.41	0.17	-0.01
R202 LISTENING:MRT	9									1.00	0.16	0.19	0.39	0.19	0.43	0.43	0.32	0.14
R203 MATCHING:MRT	10										1.00	0.23	0.40	0.34	-0.10	0.14	0.34	0.06
R204 ALPHABET:MRT	11											1.00	0.53	0.10	0.29	0.20	0.20	0.05
R205 NUMBERS:MRT	12												1.00	0.35	0.13	0.27	0.41	0.19
R206 COPYING:MRT	13													1.00	0.05	0.33	0.19	0.27
M112 VOCB:WPSI SCA	14														1.00	0.26	-0.02	0.15
M114 SIML:WPSI SCA	15															1.00	0.19	0.08
M117 P.CH:WPSI SCA	16																1.00	0.40
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.29
110 COUNT MEMS:PC	2	0.35
111 CNT MEMS:OBJS	3	0.22
118 EQIV SETS:OBJS	4	0.18
119 EQIV SETS:DOTS	5	0.28
130 CLASFY(OVRLAP)	6	0.33
147 ORDRG:COMPOS	7	0.25
R201 WORD MEAN:MRT	8	0.13
R202 LISTENING:MRT	9	0.24
R203 MATCHING:MRT	10	0.23
R204 ALPHABET:MRT	11	0.60
R205 NUMBERS:MRT	12	0.46
R206 COPYING:MRT	13	0.17
M112 VOCB:WPSI SCA	14	0.09
M114 SIML:WPSI SCA	15	0.23
M117 P.CH:WPSI SCA	16	0.17
M120 BLKD:WPSI SCA	17	0.12
A209 #RT:SAT TOTAL	18	1.00

N = 55 FOR CELL D1

(CONTINUED)

TABLE A7.3
(THIRTEENTH PAGE)

KUHLMANN-ANDERSON SCALE

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.02	-0.01	0.08	0.04	0.10	0.10	0.18	0.03	-0.06	0.19	0.07	0.03	0.24	0.16	0.25	0.16
110 COUNT MEMS:PC	2		1.00	0.54	0.40	0.33	0.17	0.28	0.09	0.28	0.28	0.26	0.29	0.35	0.13	0.17	0.01	0.25
111 CNT MEMS:OBJS	3			1.00	0.55	0.42	0.04	0.38	-0.01	0.23	0.29	0.38	0.37	0.23	0.13	0.19	0.08	0.24
118 EQIV SETS:CBJS	4				1.00	0.79	0.10	0.35	0.11	0.31	0.30	0.34	0.37	0.33	0.16	0.17	0.20	0.32
119 EQIV SETS:DOTS	5					1.00	0.17	0.36	0.15	0.25	0.33	0.38	0.41	0.34	0.12	0.23	0.20	0.33
130 CLASFY(OVRLAP)	6						1.00	0.17	0.29	0.24	0.19	0.24	0.22	0.18	0.28	0.15	0.10	0.27
147 ORDRG:COMPOS	7							1.00	0.01	0.19	0.28	0.18	0.34	0.48	0.15	0.29	0.32	0.32
R201 WORD MEAN:MRT	8								1.00	0.44	0.35	0.36	0.37	0.16	0.42	0.17	0.39	0.42
R202 LISTENING:MRT	9									1.00	0.40	0.38	0.43	0.21	0.36	0.38	0.30	0.40
R203 MATCHING:MRT	10										1.00	0.44	0.47	0.26	0.18	0.20	0.22	0.39
R204 ALPHABET:MRT	11											1.00	0.64	0.30	0.39	0.38	0.33	0.31
R205 NUMBERS:MRT	12												1.00	0.37	0.32	0.30	0.23	0.49
R206 COPYING:MRT	13													1.00	0.23	0.13	0.31	0.32
M112 VOCB:WPSI SCA	14														1.00	0.49	0.47	0.56
M114 SIML:WPSI SCA	15															1.00	0.34	0.30
M117 P.CN:WPSI SCA	16																1.00	0.53
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.23
110 COUNT MEMS:PC	2	0.11
111 CNT MEMS:OBJS	3	0.08
118 EQIV SETS:CBJS	4	0.20
119 EQIV SETS:DOTS	5	0.14
130 CLASFY(OVRLAP)	6	0.20
147 ORDRG:COMPOS	7	0.38
R201 WORD MEAN:MRT	8	0.24
R202 LISTENING:MRT	9	0.12
R203 MATCHING:MRT	10	0.14
R204 ALPHABET:MRT	11	0.31
R205 NUMBERS:MRT	12	0.29
R206 COPYING:MRT	13	0.40
M112 VOCB:WPSI SCA	14	0.33
M114 SIML:WPSI SCA	15	0.21
M117 P.CN:WPSI SCA	16	0.48
M120 BLKD:WPSI SCA	17	0.36
M324 IQ:KUHL-ANDER	18	1.00

N = 87 FOR CELL A1

(CONTINUED)

TABLE A7.3
(FOURTEENTH PAGE)

KUHLMANN-ANDERSON SCALE

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.19	0.14	0.13	0.02	-0.07	-0.13	0.28	0.30	0.14	0.14	0.24	-0.03	0.18	0.20	0.05	0.00
110 COUNT MEMS:PC	2		1.00	0.57	0.28	0.37	0.19	0.26	0.21	0.01	0.15	0.06	0.33	0.13	0.17	-0.01	0.01	0.24
111 CNT MEMS:OBJS	3			1.00	0.33	0.33	0.10	0.19	0.02	0.04	0.05	-0.00	0.20	0.24	0.00	0.15	0.08	0.31
118 EQIV SETS:OBJS	4				1.00	0.35	0.04	0.09	0.15	0.12	0.31	0.19	0.35	0.33	0.25	0.13	0.23	0.25
119 EQIV SETS:DOTS	5					1.00	0.38	0.25	0.15	0.13	0.30	0.15	0.30	0.18	0.21	0.02	0.25	0.24
130 CLASFY(OVRLAP)	6						1.00	0.37	0.37	0.21	0.18	0.11	0.18	0.06	0.38	0.28	0.15	0.26
147 ORDRG:COMPOS	7							1.00	0.33	0.20	0.31	0.19	0.34	0.30	0.34	0.07	0.34	0.43
R201 WORD MEAN:MRT	8								1.00	0.61	0.27	0.27	0.41	0.23	0.50	0.34	0.29	0.24
R202 LISTENING:MRT	9									1.00	0.38	0.30	0.34	0.20	0.38	0.45	0.28	0.27
R203 MATCHING:MRT	10										1.00	0.35	0.51	0.35	0.28	0.08	0.37	0.27
R204 ALPHABET:MRT	11											1.00	0.48	0.27	0.18	0.14	0.35	0.21
R205 NUMBERS:MRT	12												1.00	0.24	0.32	0.15	0.37	0.43
R206 COPYING:MRT	13													1.00	0.10	0.10	0.21	0.46
M112 VOCB:WPSI SCA	14														1.00	0.43	0.35	0.30
M114 SIML:WPSI SCA	15															1.00	-0.04	0.10
M117 P.CM:WPSI SCA	16																1.00	0.37
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.19
110 COUNT MEMS:PC	2	0.24
111 CNT MEMS:OBJS	3	0.15
118 EQIV SETS:OBJS	4	0.29
119 EQIV SETS:DOTS	5	0.41
130 CLASFY(OVRLAP)	6	0.32
147 ORDRG:COMPOS	7	0.38
R201 WORD MEAN:MRT	8	0.27
R202 LISTENING:MRT	9	0.20
R203 MATCHING:MRT	10	0.47
R204 ALPHABET:MRT	11	0.38
R205 NUMBERS:MRT	12	0.57
R206 COPYING:MRT	13	0.31
M112 VOCB:WPSI SCA	14	0.45
M114 SIML:WPSI SCA	15	0.15
M117 P.CM:WPSI SCA	16	0.36
M120 BLKD:WPSI SCA	17	0.45
M324 IQ:KUHL-ANDER	18	1.00

N = 80 FOR CELL B1

(CONTINUED)

TABLE A7.3
(FIFTEENTH PAGE)

KUHLMANN-ANDERSON SCALE

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.27	0.09	0.15	-0.02	0.14	0.15	0.27	0.28	0.05	0.35	0.25	0.15	0.01	0.19	0.02	0.18
110 COUNT MEMS:PC	2		1.00	0.54	0.48	0.40	0.12	0.16	0.13	0.30	0.35	0.21	0.42	0.26	0.08	0.10	-0.05	0.20
111 CNT MEMS:OBJS	3			1.00	0.46	0.50	0.09	0.18	0.11	0.22	0.25	0.19	0.32	0.34	0.00	-0.10	-0.01	0.17
118 EQIV SETS:OBJS	4				1.00	0.58	0.10	0.17	0.11	0.16	0.31	0.13	0.44	0.29	-0.05	-0.04	0.04	0.14
119 EQIV SETS:DOTS	5					1.00	0.07	0.15	0.10	0.01	0.26	0.28	0.30	0.26	-0.04	-0.06	-0.03	0.16
130 CLASFY(OVRLAP)	6						1.00	0.34	0.21	0.19	0.25	0.37	0.43	0.37	0.16	-0.11	0.26	0.04
147 ORDRG:COMPOS	7							1.00	0.30	0.28	0.32	0.10	0.49	0.42	0.21	-0.01	0.16	0.35
R201 WORD MEAN:MRT	8								1.00	0.52	0.25	0.23	0.34	0.30	0.35	-0.01	0.13	0.17
R202 LISTENING:MRT	9									1.00	0.34	0.30	0.48	0.41	0.36	0.26	0.17	0.14
R203 MATCHING:MRT	10										1.00	0.24	0.55	0.36	0.15	0.22	0.13	0.21
R204 ALPHABET:MRT	11											1.00	0.37	0.23	0.09	0.28	0.05	0.12
R205 NUMBERS:MRT	12												1.00	0.47	0.20	0.15	0.02	0.20
R206 COPYING:MRT	13													1.00	0.13	0.09	0.30	0.37
M112 VOCB:WPSI SCA	14														1.00	0.30	0.28	0.05
M114 SIML:WPSI SCA	15															1.00	-0.05	0.05
M117 P.CM:WPSI SCA	16																1.00	0.20
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.27
110 COUNT MEMS:PC	2	0.39
111 CNT MEMS:OBJS	3	0.31
118 EQIV SETS:OBJS	4	0.37
119 EQIV SETS:DOTS	5	0.33
130 CLASFY(OVRLAP)	6	0.28
147 ORDRG:COMPOS	7	0.47
R201 WORD MEAN:MRT	8	0.28
R202 LISTENING:MRT	9	0.35
R203 MATCHING:MRT	10	0.47
R204 ALPHABET:MRT	11	0.31
R205 NUMBERS:MRT	12	0.58
R206 COPYING:MRT	13	0.57
M112 VOCB:WPSI SCA	14	0.19
M114 SIML:WPSI SCA	15	0.12
M117 P.CM:WPSI SCA	16	0.23
M120 BLKD:WPSI SCA	17	0.62
M324 IQ:KUHL-ANDER	18	1.00

N = 87 FOR CELL C1

(CONTINUED)

TABLE A7.3
(SIXTEENTH PAGE)

KUHLMANN-ANDERSON SCALE

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
104 GEO SHAP:IDFY	1	1.00	0.09	-0.14	-0.03	-0.03	0.19	0.27	0.18	0.31	0.01	0.13	-0.06	0.02	0.11	0.21	0.21	0.13
110 COUNT MEMS:PC	2		1.00	0.56	0.21	0.27	0.52	0.29	0.17	0.22	0.31	0.21	0.36	0.44	0.13	0.15	0.32	0.22
111 CNT MEMS:OBJS	3			1.00	0.29	0.23	0.24	0.12	0.09	0.10	0.10	0.12	0.33	0.21	0.24	-0.08	0.12	0.23
118 EQIV SETS:CBJS	4				1.00	0.49	-0.09	0.11	0.11	0.11	0.16	0.19	0.29	0.14	0.09	-0.04	0.17	0.15
119 EQIV SETS:DOTS	5					1.00	0.10	0.25	0.15	0.13	0.26	0.25	0.20	-0.01	0.08	-0.01	0.28	-0.02
130 CLASFY(OVRLAP)	6						1.00	0.24	0.10	0.12	-0.01	0.07	0.19	0.16	0.25	0.29	0.23	0.30
147 ORDRG:COMPCS	7							1.00	0.26	0.27	0.27	0.41	0.35	0.11	0.28	0.13	0.37	0.23
R201 WORD MEAN:MRT	8								1.00	0.55	0.12	0.19	0.43	0.25	0.33	0.41	0.17	-0.01
R202 LISTENING:MRT	9									1.00	0.16	0.19	0.39	0.19	0.43	0.43	0.32	0.14
R203 MATCHING:MRT	10										1.00	0.23	0.40	0.34	-0.10	0.14	0.34	0.06
R204 ALPHABET:MRT	11											1.00	0.53	0.10	0.29	0.20	0.20	0.05
R205 NUMBERS:MRT	12												1.00	0.35	0.13	0.27	0.41	0.19
R206 COPYING:MRT	13													1.00	0.05	0.33	0.19	0.27
M112 VOCB:WPSI SCA	14														1.00	0.26	-0.02	0.15
M114 SIML:WPSI SCA	15															1.00	0.19	0.08
M117 P.CM:WPSI SCA	16																1.00	0.40
M120 BLKD:WPSI SCA	17																	1.00

		18
104 GEO SHAP:IDFY	1	0.16
110 COUNT MEMS:PC	2	0.39
111 CNT MEMS:OBJS	3	0.31
118 EQIV SETS:CBJS	4	0.22
119 EQIV SETS:DOTS	5	0.12
130 CLASFY(OVRLAP)	6	0.34
147 ORDRG:COMPCS	7	0.32
R201 WORD MEAN:MRT	8	0.25
R202 LISTENING:MRT	9	0.38
R203 MATCHING:MRT	10	0.13
R204 ALPHABET:MRT	11	0.44
R205 NUMBERS:MRT	12	0.54
R206 COPYING:MRT	13	0.43
M112 VOCB:WPSI SCA	14	0.29
M114 SIML:WPSI SCA	15	0.40
M117 P.CM:WPSI SCA	16	0.38
M120 BLKD:WPSI SCA	17	0.58
M324 IQ:KUHL-ANDER	18	1.00

N = 55 FOR CELL D1

Table A7.4
Regression Weights by Cell
for End-of-First-Grade Scales
Using End-of-Kindergarten Scales as Covariates
Longitudinal Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 306 PLACE VALUE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M114 SIML:WPSI SCA	0.313	0.189	0.039	0.006	0.155	0.180
M120 BLKD:WPSI SCA	0.168	0.278	0.324	0.306	0.265	0.286
R205 NUMBERS:MRT	0.296	0.344	0.420	0.359	0.346	0.393

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M114 SIML:WPSI SCA	0.218	0.131	0.027	0.004	0.108	0.126
M120 BLKD:WPSI SCA	0.130	0.215	0.250	0.236	0.204	0.221
R205 NUMBERS:MRT	0.151	0.175	0.215	0.183	0.177	0.201
RSQ	0.381	0.386	0.345	0.329	0.344	0.415
R	0.618	0.621	0.587	0.573	0.586	0.644
F	18.082	15.481	14.405	7.503	52.718	71.471
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 307 NUMBER COMPARISON: ORDER

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
130,CLASFY(OVRLAP)	0.160	0.460	0.202	0.582	0.235	0.254
147 ORDRG:COMPOS	0.024	0.103	0.137	0.544	0.146	0.174
R203 MATCHING:MRT	0.034	0.136	0.311	-0.283	0.111	0.125
R205 NUMBERS:MRT	0.184	0.030	0.336	0.303	0.211	0.211

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
130,CLASFY(OVRLAP)	0.218	0.625	0.275	0.791	0.320	0.345
147 ORDRG:COMPOS	0.010	0.042	0.056	0.224	0.060	0.072
R203 MATCHING:MRT	0.016	0.065	0.148	-0.135	0.053	0.060
R205 NUMBERS:MRT	0.071	0.011	0.130	0.117	0.082	0.082
RSQ	0.110	0.177	0.519	0.566	0.242	0.323
R	0.332	0.421	0.720	0.753	0.492	0.568
F	2.697	3.986	22.120	15.019	24.321	36.271
P	0.036	0.006	0.000	0.000	0.000	0.000

(continued)

Table A7.4
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 308 NUMBER LINE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M120 BLKD:WPSI SCA	0.003	0.259	0.063	0.306	0.148	0.161
R202 LISTENING:MRT	0.260	0.085	-0.065	0.213	0.110	0.143
R203 MATCHING:MRT	0.197	0.100	0.262	0.056	0.179	0.219
R205 NUMBERS:MRT	0.249	0.060	0.202	0.076	0.156	0.156

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M120 BLKD:WPSI SCA	0.001	0.126	0.031	0.149	0.072	0.078
R202 LISTENING:MRT	0.122	0.040	-0.031	0.100	0.052	0.067
R203 MATCHING:MRT	0.080	0.040	0.106	0.022	0.072	0.088
R205 NUMBERS:MRT	0.080	0.019	0.065	0.024	0.050	0.050
RSQ	0.338	0.204	0.178	0.235	0.209	0.260
R	0.581	0.452	0.422	0.485	0.457	0.510
F	10.720	4.678	4.486	3.462	19.768	26.390
P	0.000	0.002	0.002	0.015	0.000	0.000

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DEPENDENT VARIABLE -- 309 APPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPOS	0.091	-0.009	0.089	0.411	0.089	0.121
M114 SIML:WPSI SCA	0.130	0.122	0.126	0.250	0.151	0.155
M117 P.CM:WPSI SCA	0.136	0.079	0.059	0.251	0.128	0.139
R205 NUMBERS:MRT	0.369	0.497	0.415	0.443	0.429	0.436

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPOS	0.041	-0.004	0.040	0.183	0.040	0.054
M114 SIML:WPSI SCA	0.074	0.070	0.072	0.140	0.086	0.088
M117 P.CM:WPSI SCA	0.083	0.048	0.036	0.152	0.078	0.084
R205 NUMBERS:MRT	0.153	0.295	0.172	0.183	0.178	0.180
RSQ	0.378	0.296	0.262	0.505	0.329	0.395
R	0.614	0.544	0.512	0.711	0.574	0.628
F	13.042	7.879	7.449	11.470	37.399	49.746
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.4
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 311 COMPUTATION: ADDITION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.135	-0.006	-0.048	0.181	0.044	0.061
119 EQIV SETS:DOTS	0.084	-0.068	0.326	-0.005	0.145	0.155
M120 BLKD:WPSI SCA	0.307	0.138	0.318	0.087	0.254	0.280
R205 NUMBERS:MRT	0.396	0.333	0.169	0.142	0.261	0.315

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.111	-0.005	-0.039	0.149	0.037	0.050
119 EQIV SETS:DOTS	0.137	-0.111	0.531	-0.007	0.236	0.255
M120 BLKD:WPSI SCA	0.269	0.121	0.279	0.076	0.223	0.246
R205 NUMBERS:MRT	0.228	0.192	0.098	0.082	0.150	0.182
RSQ	0.399	0.222	0.312	0.295	0.292	0.369
R	0.631	0.471	0.559	0.543	0.540	0.607
F	13.917	5.200	9.649	4.710	31.092	44.155
P	0.000	0.001	0.000	0.003	0.000	0.000

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DEPENDENT VARIABLE -- 312 COMPUTATION: SUBTRACTION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M114 SIML:WPSI SCA	0.243	0.191	-0.080	0.170	0.125	0.154
R204 ALPHABET:MRT	0.192	0.150	0.053	-0.217	0.084	0.080
R205 NUMBERS:MRT	0.262	0.308	0.369	0.437	0.350	0.410
R206 COPYING:MRT	0.137	0.137	0.253	0.053	0.189	0.201

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M114 SIML:WPSI SCA	0.269	0.210	-0.088	0.187	0.138	0.170
R204 ALPHABET:MRT	0.160	0.125	0.045	-0.181	0.070	0.067
R205 NUMBERS:MRT	0.211	0.247	0.312	0.351	0.281	0.330
R206 COPYING:MRT	0.191	0.249	0.336	0.078	0.251	0.267
RSQ	0.422	0.321	0.332	0.410	0.326	0.404
R	0.650	0.567	0.576	0.640	0.571	0.635
F	15.342	8.439	10.552	7.802	36.589	51.259
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.4
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 313 COMPUTATION: MULTIPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
R205 NUMBERS:MRT	0.246	0.434	0.230	0.600	0.332	0.371
M120 BLKD:WPSI SCA	0.055	0.208	0.141	0.112	0.125	0.157

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
R205 NUMBERS:MRT	0.045	0.079	0.042	0.109	0.060	0.067
M120 BLKD:WPSI SCA	0.015	0.057	0.039	0.031	0.035	0.044
RSQ	0.161	0.164	0.177	0.271	0.164	0.211
R	0.401	0.404	0.421	0.521	0.404	0.460
F	8.237	7.335	9.372	8.733	29.711	40.735
P	0.001	0.001	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 321 IDENTIFYING TRIANGLES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	0.061	0.241	0.135	0.227	0.167	0.176
M112 VOCB:WPSI SCA	0.135	0.246	0.007	0.205	0.131	0.113
R201 WORD MEAN:MRT	-0.255	-0.357	-0.271	-0.068	-0.218	-0.266
R204 ALPHABET:MRT	-0.070	-0.100	0.073	-0.093	-0.061	-0.097
R205 NUMBERS:MRT	0.111	0.473	0.339	0.210	0.276	0.258

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	0.127	0.500	0.280	0.471	0.346	0.365
M112 VOCB:WPSI SCA	0.089	0.155	0.004	0.135	0.086	0.074
R201 WORD MEAN:MRT	-0.158	-0.160	-0.169	-0.042	-0.135	-0.165
R204 ALPHABET:MRT	-0.034	-0.043	0.035	-0.045	-0.029	-0.047
R205 NUMBERS:MRT	0.052	0.224	0.159	0.098	0.130	0.121
RSQ	0.092	0.261	0.123	0.075	0.100	0.092
R	0.303	0.511	0.351	0.273	0.317	0.304
F	1.721	5.092	2.253	0.708	6.677	6.072
P	0.139	0.000	0.057	0.620	0.000	0.000

(continued)

Table A7.4
(fifth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 322 IDENTIFYING RECTANGLES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	0.174	0.264	0.255	0.298	0.230	0.228
M120 BLKD:WPSI SCA	-0.057	0.243	0.079	0.276	0.089	0.070
R205 NUMBERS:MRT	0.250	-0.038	0.408	0.178	0.216	0.158

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	0.273	0.413	0.400	0.466	0.360	0.358
M120 BLKD:WPSI SCA	-0.030	0.128	0.042	0.146	0.047	0.037
R205 NUMBERS:MRT	0.087	-0.013	0.143	0.062	0.076	0.055
RSQ	0.118	0.146	0.205	0.188	0.135	0.105
R	0.344	0.382	0.453	0.433	0.368	0.324
F	3.925	4.210	7.069	3.539	15.767	11.771
P	0.011	0.008	0.000	0.022	0.000	0.000

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DEPENDENT VARIABLE -- 323 CURVED FIGURES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	-0.157	-0.192	-0.148	-0.066	-0.150	-0.143
M114 SIML:WPSI SCA	-0.076	0.022	-0.000	0.146	-0.015	0.003
R203 MATCHING:MRT	0.014	-0.036	-0.409	0.036	-0.158	-0.111
R204 ALPHABET:MRT	0.037	0.332	0.033	-0.075	0.120	0.117

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
104 GEO SHAP:IDFY	-0.268	-0.329	-0.253	-0.113	-0.257	-0.244
M114 SIML:WPSI SCA	-0.040	0.011	-0.000	0.076	-0.008	0.001
R203 MATCHING:MRT	0.007	-0.017	-0.222	0.017	-0.074	-0.053
R204 ALPHABET:MRT	0.014	0.129	0.013	-0.029	0.047	0.045
RSQ	0.041	0.117	0.214	0.020	0.042	0.031
R	0.201	0.342	0.463	0.142	0.205	0.176
F	0.930	2.414	5.447	0.230	3.290	2.403
P	0.450	0.056	0.001	0.920	0.012	0.050

(continued)

Table A7.4
(sixth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 328 COMPREHENSION (GROUP)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.118	0.067	0.190	0.228	0.160	0.156
147 ORDRG:COMPOS	0.203	-0.054	0.025	0.301	0.083	0.123
R205 NUMBERS:MRT	0.222	0.524	0.355	0.466	0.367	0.365

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.048	0.027	0.077	0.092	0.065	0.063
147 ORDRG:COMPOS	0.062	-0.017	0.008	0.092	0.025	0.038
R205 NUMBERS:MRT	0.063	0.149	0.101	0.132	0.104	0.103
RSQ	0.209	0.206	0.292	0.364	0.236	0.272
R	0.457	0.454	0.541	0.604	0.486	0.522
F	7.643	6.648	11.975	8.977	31.924	38.700
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 329 COMPREHENSION (INDIVIDUAL)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.182	-0.072	0.203	-0.022	0.134	0.173
M120 BLKD:WPSI SCA	0.010	0.137	0.328	0.253	0.167	0.212
R205 NUMBERS:MRT	0.306	-0.001	0.270	0.168	0.186	0.237

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
110 COUNT MEMS:PC	0.084	-0.034	0.096	-0.010	0.063	0.081
M120 BLKD:WPSI SCA	0.005	0.068	0.163	0.126	0.083	0.106
R205 NUMBERS:MRT	0.101	-0.000	0.089	0.055	0.061	0.078
RSQ	0.188	0.035	0.334	0.118	0.152	0.224
R	0.434	0.188	0.578	0.343	0.389	0.474
F	6.811	0.919	14.399	2.088	18.338	29.720
P	0.000	0.436	0.000	0.114	0.000	0.000

(continued)

Table A7.4
(seventh page)

B. Raven Scales

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DEPENDENT VARIABLE -- M201 RAVEN SET A

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPOS	-0.065	0.155	0.178	-0.016	0.105	0.144
M120 BLKD:WPSI SCA	0.058	0.290	0.226	0.336	0.194	0.196
R203 MATCHING:MRT	0.094	0.137	0.078	0.406	0.114	0.125
R206 COPYING:MRT	0.398	-0.092	0.087	-0.057	0.108	0.092

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPOS	-0.025	0.060	0.068	-0.006	0.040	0.055
M120 BLKD:WPSI SCA	0.031	0.158	0.123	0.183	0.106	0.107
R203 MATCHING:MRT	0.043	0.063	0.036	0.187	0.053	0.058
R206 COPYING:MRT	0.236	-0.055	0.052	-0.034	0.064	0.055
RSQ	0.205	0.127	0.186	0.200	0.137	0.170
R	0.453	0.356	0.431	0.448	0.370	0.412
F	5.280	2.651	4.670	2.443	11.536	14.856
P	0.001	0.040	0.002	0.063	0.000	0.000

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DEPENDENT VARIABLE -- M202 RAVEN SET AB

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPOS	0.003	0.168	0.226	0.358	0.155	0.185
M120 BLKD:WPSI SCA	0.229	0.348	0.141	0.562	0.274	0.274
R201 WORD MEAN:MRT	0.128	0.073	0.185	0.071	0.134	0.159
R203 MATCHING:MRT	0.056	0.003	0.132	0.204	0.073	0.080

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPOS	0.002	0.093	0.126	0.199	0.086	0.103
M120 BLKD:WPSI SCA	0.180	0.274	0.111	0.443	0.216	0.216
R201 WORD MEAN:MRT	0.091	0.052	0.132	0.050	0.095	0.113
R203 MATCHING:MRT	0.037	0.002	0.037	0.135	0.048	0.053
RSQ	0.145	0.218	0.227	0.431	0.202	0.265
R	0.381	0.467	0.477	0.657	0.450	0.514
F	3.476	5.084	6.035	7.388	18.457	26.171
P	0.011	0.001	0.000	0.000	0.000	0.000

(continued)

Table A7.4
(eighth page)

B. Raven Scales (continued)

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DEPENDENT VARIABLE -- M203 RAVEN SET B

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M112 VOCB:WPSI SCA	0.052	0.067	0.125	0.325	0.131	0.164
M120 BLKD:WPSI SCA	0.138	0.476	0.143	0.243	0.238	0.253
R201 WORD MEAN:MRT	0.134	0.100	0.174	-0.158	0.080	0.102
R206 COPYING:MRT	0.167	0.143	0.213	0.225	0.190	0.191

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M112 VOCB:WPSI SCA	0.030	0.040	0.074	0.192	0.077	0.097
M120 BLKD:WPSI SCA	0.088	0.306	0.092	0.156	0.153	0.161
R201 WORD MEAN:MRT	0.078	0.059	0.102	-0.092	0.047	0.060
R206 COPYING:MRT	0.117	0.100	0.149	0.158	0.133	0.134
RSQ	0.166	0.351	0.182	0.239	0.204	0.262
R	0.408	0.592	0.426	0.489	0.452	0.512
F	4.043	9.867	4.602	3.059	18.672	25.790
P	0.005	0.000	0.002	0.028	0.000	0.000

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DEPENDENT VARIABLE -- M204 RAVEN TOTAL SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPOS	-0.054	0.058	0.278	0.187	0.135	0.170
M112 VOCB:WPSI SCA	-0.100	0.091	0.192	0.296	0.109	0.139
M120 BLKD:WPSI SCA	0.213	0.487	0.188	0.477	0.289	0.290
R201 WORD MEAN:MRT	0.192	0.159	0.100	-0.018	0.114	0.132
R206 COPYING:MRT	0.344	-0.014	0.124	0.093	0.137	0.125

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
147 ORDRG:COMPOS	-0.059	0.064	0.309	0.208	0.150	0.188
M112 VOCB:WPSI SCA	-0.144	0.131	0.276	0.297	0.158	0.201
M120 BLKD:WPSI SCA	0.335	0.766	0.296	0.750	0.454	0.456
R201 WORD MEAN:MRT	0.275	0.228	0.143	-0.026	0.163	0.189
R206 COPYING:MRT	0.590	-0.024	0.212	0.160	0.234	0.214
RSQ	0.326	0.402	0.349	0.329	0.300	0.373
R	0.571	0.634	0.590	0.573	0.548	0.611
F	7.726	9.672	8.774	3.720	24.846	34.534
P	0.000	0.000	0.000	0.008	0.000	0.000

(continued)

Table A7.4
(ninth page)

C. SAT Scale

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DEPENDENT VARIABLE -- A209 SAT-1 TOTAL READING NUMBER RIGHT

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M120 BLKD:WPSI SCA	0.045	0.108	0.207	0.073	0.098	0.114
R204 ALPHABET:MRT	0.213	0.451	0.282	0.622	0.326	0.291
R205 NUMBERS:MRT	0.282	0.261	0.479	0.212	0.329	0.372

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M120 BLKD:WPSI SCA	0.276	0.662	1.275	0.451	0.605	0.699
R204 ALPHABET:MRT	0.901	1.904	1.188	2.626	1.374	1.229
R205 NUMBERS:MRT	1.153	1.067	1.958	0.867	1.345	1.520
RSQ	0.329	0.377	0.490	0.388	0.368	0.400
R	0.573	0.614	0.700	0.623	0.607	0.633
F	14.360	15.327	27.518	10.772	60.745	69.662
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.4
(tenth page)

D. Kuhlmann-Anderson Scale

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DEPENDENT VARIABLE -- M324 KUHLMANN-ANDERSON I.Q.

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M112 VOCB:WPSI SCA	0.208	0.261	0.063	0.158	0.151	0.139
M120 BLKD:WPSI SCA	0.114	0.133	0.454	0.414	0.268	0.261
P205 NUMBERS:MRT	0.022	0.441	0.395	0.345	0.266	0.243
P206 COPYING:MRT	0.314	0.141	0.205	0.149	0.218	0.196

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M112 VOCB:WPSI SCA	0.992	1.247	0.300	0.754	0.722	0.666
M120 BLKD:WPSI SCA	0.592	0.721	2.361	2.154	1.391	1.358
P205 NUMBERS:MRT	0.036	1.505	1.353	1.181	0.909	0.832
P206 COPYING:MRT	1.777	0.794	1.160	0.843	1.231	1.110
RSQ	0.206	0.445	0.636	0.583	0.383	0.374
R	0.454	0.667	0.797	0.764	0.619	0.612
F	5.392	15.056	36.668	17.477	47.669	45.919
P	0.001	0.000	0.000	0.000	0.000	0.000

TABLE A7.5
CORRELATIONS WITHIN CELLS
OF END-OF-SECOND-GRADE SCALES AND END-OF-FIRST-GRADE SCALES
LONGITUDINAL SAMPLE

MATHEMATICS SCALES (EXCLUDING RATIONALS, SCALE 507)

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.51	0.39	0.57	0.00	0.54	0.60	0.44	0.06	0.31	-0.06	0.29	0.48	0.43	0.14
307 NUMBER CMPARSN	2		1.00	0.15	0.45	-0.06	0.17	0.25	0.24	0.06	0.27	-0.13	0.11	0.14	0.24	0.17
308 NUMBER LINE	3			1.00	0.33	0.06	0.36	0.42	0.20	-0.05	0.15	0.09	0.22	0.20	0.34	0.22
309 APPLICATION	4				1.00	0.18	0.48	0.55	0.39	0.01	0.21	-0.04	0.33	0.41	0.39	0.29
310 RATIONALS	5					1.00	-0.10	0.11	-0.00	0.02	0.05	-0.07	0.19	0.26	0.11	-0.04
311 COMPUTE:ADD	6						1.00	0.60	0.31	0.06	0.14	-0.11	0.20	0.39	0.37	0.23
312 COMPUTE:SUBT	7							1.00	0.33	-0.08	0.19	-0.00	0.18	0.48	0.51	0.30
313 COMPURE:MULT	8								1.00	-0.05	0.10	0.11	0.30	0.37	0.41	0.10
321 IDFY TRIANGS	9									1.00	0.31	-0.27	0.01	-0.19	-0.07	-0.05
322 IDFY RECTS	10										1.00	-0.43	-0.01	0.15	0.25	0.05
323 CURVD FIGS	11											1.00	0.10	-0.00	0.08	0.15
328 CMPREHEN:GROUP	12												1.00	0.28	0.21	0.05
329 CMPREHEN:INDIV	13													1.00	0.39	0.16
A209 #RT:SAT TOTAL	14														1.00	0.52
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
306 PLACE VALUE	1	0.56	0.40	0.45	0.57	0.25	0.41	0.42	0.07	0.58	0.47	0.45	0.15	-0.10	-0.06	0.06	0.08
307 NUMBER CMPARSN	2	0.31	0.26	0.36	0.25	0.20	0.20	0.22	0.07	0.24	0.29	0.31	0.14	-0.17	0.03	0.09	-0.19
308 NUMBER LINE	3	0.33	0.56	0.45	0.30	0.19	0.31	0.21	0.09	0.45	0.38	0.28	0.10	-0.06	-0.07	0.01	0.16
309 APPLICATION	4	0.51	0.55	0.52	0.47	0.25	0.49	0.28	0.21	0.41	0.46	0.40	0.19	-0.17	-0.06	0.03	-0.01
310 RATIONALS	5	0.18	0.06	0.21	0.26	-0.04	-0.05	0.08	0.28	0.02	0.11	0.16	-0.02	-0.11	-0.08	-0.07	0.18
311 COMPUTE:ADD	6	0.37	0.42	0.48	0.43	0.18	0.46	0.32	0.13	0.48	0.43	0.36	0.10	0.08	0.03	0.22	-0.11
312 COMPUTE:SUBT	7	0.58	0.61	0.54	0.60	0.35	0.52	0.42	0.22	0.53	0.63	0.53	0.27	-0.18	-0.06	0.15	-0.05
313 COMPURE:MULT	8	0.36	0.42	0.33	0.38	0.18	0.40	0.20	0.14	0.32	0.25	0.26	0.09	-0.06	-0.07	-0.02	0.11
321 IDFY TRIANGS	9	0.02	-0.09	-0.03	0.11	-0.04	-0.03	-0.03	-0.11	0.00	-0.07	-0.07	-0.04	0.01	0.24	0.17	0.06
322 IDFY RECTS	10	0.29	0.11	0.24	0.26	0.07	0.19	0.19	0.06	0.16	0.11	0.19	0.13	-0.21	0.21	-0.03	0.03
323 CURVD FIGS	11	-0.05	0.15	-0.06	-0.17	-0.17	0.05	0.12	0.00	-0.00	-0.05	0.07	0.20	0.03	-0.19	-0.11	0.02
328 CMPREHEN:GROUP	12	0.32	0.31	0.34	0.21	0.01	0.18	0.19	0.05	0.30	0.20	0.20	0.12	0.15	0.18	0.22	0.09
329 CMPREHEN:INDIV	13	0.40	0.36	0.47	0.44	0.15	0.30	0.36	0.05	0.35	0.33	0.43	0.23	-0.09	0.03	0.00	0.02
A209 #RT:SAT TOTAL	14	0.56	0.51	0.47	0.48	0.30	0.44	0.28	0.21	0.33	0.35	0.52	0.34	-0.34	0.01	0.00	0.03
M324 KULH AND:IQ	15	0.27	0.40	0.28	0.09	0.32	0.36	0.14	0.05	0.12	0.15	0.40	0.15	0.07	0.07	0.10	-0.11
501 VOCABULARY	16	1.00	0.57	0.68	0.57	0.32	0.59	0.51	0.22	0.52	0.49	0.39	0.19	-0.14	0.07	0.23	0.06
502 COMPREHENSION	17		1.00	0.59	0.49	0.31	0.55	0.38	0.16	0.45	0.43	0.40	0.17	-0.09	-0.07	0.15	0.08
503 NUMBER CMPARSN	18			1.00	0.54	0.30	0.55	0.44	0.33	0.58	0.52	0.51	0.18	-0.07	0.02	0.19	-0.08
504 PLACE VALUE	19				1.00	0.27	0.48	0.26	0.11	0.47	0.50	0.43	0.21	-0.14	0.05	0.04	0.24
505 NUMBER LINE	20					1.00	0.29	0.17	0.10	0.29	0.44	0.25	0.04	-0.10	0.02	0.18	0.08
506 APPLICATION	21						1.00	0.32	0.24	0.47	0.53	0.33	0.12	-0.06	0.03	0.16	-0.16
508 ORDR:PICSET:GP	22							1.00	0.13	0.42	0.39	0.43	0.20	-0.12	-0.09	0.11	0.04
509 COUNTING	23								1.00	0.20	0.22	0.13	-0.00	0.02	-0.13	-0.15	-0.13
510 COMPUTE:ADD	24									1.00	0.74	0.55	0.15	0.02	-0.03	0.18	0.08
511 COMPUTE:SUBT	25										1.00	0.50	0.13	-0.07	-0.07	0.26	0.03
512 COMPUTE:MULT	26											1.00	0.31	-0.06	-0.06	-0.04	0.01
521 IDFY POLYGS	27												1.00	-0.38	0.04	-0.03	0.11
522 CRVD&OPEN FIGS	28													1.00	0.04	0.12	-0.06
523 IDFY TRIANGS	29														1.00	0.27	-0.17
524 CONGRUENCE	30															1.00	-0.24
525 SIMILARITY	31																1.00

N = 87 FOR CELL A1

TABLE A7.5
(SECOND PAGE)

RATIONALS, SCALE 507

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.63	0.43	0.61	-0.07	0.54	0.60	0.45	0.03	0.36	0.00	0.26	0.44	0.60	0.42	0.22
307 NUMBER CMPARSN	2		1.00	0.22	0.57	-0.03	0.30	0.35	0.27	-0.05	0.24	-0.11	0.17	0.32	0.36	0.44	0.21
308 NUMBER LINE	3			1.00	0.32	-0.04	0.29	0.50	0.20	-0.11	0.18	0.13	0.22	0.26	0.38	0.40	0.27
309 APPLICATION	4				1.00	0.11	0.45	0.55	0.43	-0.19	0.12	0.09	0.35	0.43	0.44	0.45	0.33
310 RATIONALS	5					1.00	-0.25	0.01	-0.01	0.01	0.02	0.06	0.16	0.2[illegible]	0.07	0.03	0.20
311 COMPUTE:ADD	6						1.00	0.56	0.33	-0.08	0.10	-0.07	0.09	0.36	0.47	0.37	0.25
312 COMPUTE:SUBT	7							1.00	0.36	-0.21	0.17	0.11	0.13	0.44	0.64	0.53	0.31
313 COMPUTE:MULT	8								1.00	-0.06	0.13	0.12	0.38	0.38	0.52	0.26	0.12
321 IDFY TRIANGS	9									1.00	0.15	-0.20	0.02	-0.25	-0.19	-0.09	0.08
322 IDFY RECTS	10										1.00	-0.41	0.02	0.20	0.27	0.23	-0.05
323 CURVD FIGS	11											1.00	0.17	0.06	0.12	0.05	0.08
328 CMPREHEN:GROUP	12												1.00	0.28	0.23	0.09	0.09
329 CMPREHEN:INDIV	13													1.00	0.55	0.43	0.25
A209 ART:SAT TOTAL	14														1.00	0.55	0.2
N324 MATH AND:IQ	15															1.00	0.3[illegible]
507 APPLICATION	16																1.00

N = 66 FOR CELL A1

(CONTINUED)

TABLE A7.5
(THIRD PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.23	0.27	0.52	0.12	0.37	0.40	0.36	0.22	0.25	-0.00	0.31	0.26	0.35	0.46
307 NUMBER CMPARSN	2		1.00	0.21	0.22	0.03	0.21	0.33	0.15	0.18	0.13	-0.16	0.19	0.23	0.19	0.28
308 NUMBER LINE	3			1.00	0.11	0.15	0.40	0.30	0.11	0.09	0.03	0.16	0.26	0.06	0.31	0.32
309 APPLICATION	4				1.00	0.08	0.50	0.56	0.42	0.25	0.10	-0.03	0.32	0.17	0.37	0.26
310 RATIONALS	5					1.00	0.22	0.12	0.01	-0.21	-0.09	0.07	-0.03	-0.02	0.13	0.15
311 COMPUTE:ADD	6						1.00	0.62	0.32	0.02	-0.11	0.18	0.28	0.22	0.46	0.36
312 COMPUTE:SUBT	7							1.00	0.43	0.07	-0.03	0.15	0.43	0.43	0.52	0.32
313 COMPURE:MULT	8								1.00	0.09	0.03	0.07	0.33	0.38	0.41	0.28
321 IDFY TRIANGS	9									1.00	0.50	-0.37	0.34	-0.09	0.01	0.09
322 IDFY RECTS	10										1.00	-0.24	0.16	0.03	0.05	0.22
323 CURVD FIGS	11											1.00	-0.11	0.08	0.33	-0.02
328 CMPREHEN:GROUP	12												1.00	0.28	0.34	0.37
329 CMPREHEN:INDIV	13													1.00	0.32	0.22
A209 ART:SAT TOTAL	14														1.00	0.36
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
306 PLACE VALUE	1	0.48	0.25	0.34	0.63	0.21	0.42	0.37	0.17	0.11	0.43	0.25	0.42	0.09	0.22	0.08	0.21	0.08
307 NUMBER CMPARSN	2	0.33	0.29	0.28	0.38	0.39	0.15	0.20	0.19	0.11	0.35	0.16	0.16	0.09	-0.02	0.09	0.03	-0.05
308 NUMBER LINE	3	0.29	0.19	0.41	0.41	0.23	0.44	0.39	0.15	0.09	0.36	0.30	0.34	-0.10	0.08	0.10	0.04	0.09
309 APPLICATION	4	0.50	0.35	0.36	0.68	0.20	0.40	0.28	0.25	0.01	0.37	0.27	0.41	0.16	0.08	0.20	0.18	0.05
310 RATIONALS	5	0.10	0.12	0.00	0.06	0.23	0.15	0.29	0.16	0.10	0.08	0.35	0.18	-0.17	-0.07	-0.03	-0.10	0.16
311 COMPUTE:ADD	6	0.46	0.41	0.41	0.50	0.26	0.52	0.30	0.41	0.10	0.52	0.41	0.53	-0.10	0.03	0.09	0.08	0.09
312 COMPUTE:SUBT	7	0.45	0.39	0.37	0.66	0.38	0.49	0.27	0.28	0.10	0.39	0.26	0.44	0.09	0.07	0.21	0.04	0.09
313 COMPURE:MULT	8	0.40	0.35	0.22	0.40	0.23	0.29	0.19	-0.06	0.22	0.19	0.20	0.34	0.14	0.14	0.29	0.07	0.23
321 IDFY TRIANGS	9	0.17	0.09	0.19	0.18	0.01	0.17	0.18	-0.01	0.02	0.10	-0.07	0.06	0.12	0.03	0.20	0.30	-0.25
322 IDFY RECTS	10	0.14	0.19	0.02	0.14	0.03	-0.04	0.13	-0.03	-0.01	0.01	-0.01	0.04	0.02	0.12	0.09	0.21	-0.17
323 CURVD FIGS	11	-0.03	-0.05	-0.12	0.16	0.03	0.11	0.04	0.13	0.00	0.05	0.08	0.17	-0.07	0.16	0.07	-0.15	0.11
328 CMPREHEN:GROUP	12	0.45	0.16	0.40	0.41	0.22	0.29	0.24	0.13	-0.03	0.14	0.17	0.30	-0.11	0.25	0.31	0.06	0.03
329 CMPREHEN:INDIV	13	0.31	0.34	0.07	0.30	0.32	0.18	0.17	0.07	-0.01	0.08	0.08	0.23	0.11	0.26	-0.00	0.06	0.20
A209 ART:SAT TOTAL	14	0.49	0.40	0.32	0.51	0.28	0.33	0.09	0.28	0.20	0.29	0.42	0.42	0.04	0.19	0.16	-0.05	0.17
M324 KULH AND:IQ	15	0.48	0.41	0.44	0.40	0.34	0.41	0.31	0.35	0.02	0.41	0.45	0.34	-0.11	0.29	-0.05	-0.03	0.19
501 VOCABULARY	16	1.00	0.50	0.52	0.61	0.34	0.46	0.26	0.47	0.12	0.29	0.40	0.39	0.02	0.22	0.11	0.02	0.15
502 COMPREHENSION	17		1.00	0.42	0.40	0.25	0.36	0.23	0.36	0.05	0.36	0.34	0.32	-0.07	0.11	0.19	0.04	0.20
503 NUMBER CMPARSN	18			1.00	0.40	0.31	0.32	0.22	0.41	0.17	0.37	0.34	0.44	0.05	0.19	0.12	-0.01	0.13
504 PLACE VALUE	19				1.00	0.33	0.59	0.45	0.29	0.11	0.53	0.46	0.49	0.13	0.21	0.30	0.15	-0.02
505 NUMBER LINE	20					1.00	0.25	0.21	0.29	-0.04	0.26	0.26	0.30	0.08	0.08	0.06	-0.08	0.12
506 APPLICATION	21						1.00	0.37	0.33	0.06	0.54	0.49	0.33	0.15	0.14	0.19	0.10	0.04
507 APPLICATION	22							1.00	0.17	-0.00	0.27	0.32	0.36	0.02	0.04	0.13	0.09	0.12
508 ORDR:PICSET:GP	23								1.00	0.10	0.34	0.36	0.23	-0.05	0.08	-0.02	-0.01	0.06
509 COUNTING	24									1.00	0.10	0.17	0.03	0.09	-0.01	-0.04	0.08	0.05
510 COMPUTE:ADD	25										1.00	0.50	0.50	-0.02	0.15	0.13	0.01	0.14
511 COMPUTE:SUBT	26											1.00	0.32	-0.01	0.14	0.06	-0.07	0.10
512 COMPUTE:MULT	27												1.00	-0.02	0.16	0.20	0.09	0.06
521 IDFY POLYGS	28													1.00	-0.04	0.09	0.28	-0.07
522 CRVD&OPEN FIGS	29														1.00	0.08	0.12	0.09
523 IDFY TRIANGS	30															1.00	0.27	-0.13
524 CONGRUENCE	31																1.00	-0.26
525 SIMILARITY	32																	1.00

N = 85 FOR CELL B1

(CONTINUED)

TABLE A7.5
(FOURTH PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.37	0.45	0.52	0.04	0.45	0.38	0.25	0.21	0.38	-0.30	0.35	0.39	0.50	0.54
307 NUMBER CMPARSN	2		1.00	0.48	0.38	0.13	0.23	0.33	0.26	0.31	0.37	-0.43	0.39	0.43	0.44	0.42
308 NUMBER LINE	3			1.00	0.31	0.07	0.30	0.47	0.13	0.16	0.27	-0.28	0.25	0.55	0.47	0.36
309 APPLICATION	4				1.00	-0.18	0.39	0.45	0.30	0.31	0.22	-0.16	0.45	0.39	0.43	0.45
310 RATIONALS	5					1.00	0.00	0.05	-0.13	-0.06	-0.05	-0.01	-0.09	-0.04	0.09	0.09
311 COMPUTE:ADD	6						1.00	0.57	0.19	0.10	0.20	-0.11	0.28	0.43	0.54	0.49
312 COMPUTE:SUBT	7							1.00	0.21	0.08	0.25	-0.16	0.29	0.47	0.53	0.53
313 COMPURE:MULT	8								1.00	0.16	0.12	-0.15	0.35	0.26	0.22	0.32
321 IDFY TRIANGS	9									1.00	0.41	-0.47	0.34	0.31	0.24	0.20
322 IDFY RECTS	10										1.00	-0.60	0.22	0.40	0.51	0.26
323 CURVD FIGS	11											1.00	-0.22	-0.29	-0.26	-0.18
328 CMPREHEN:GROUP	12												1.00	0.38	0.37	0.31
329 CMPREHEN:INDIV	13													1.00	0.51	0.54
A209 #RT:SAT TOTAL	14														1.00	0.60
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
306 PLACE VALUE	1	0.45	0.37	0.49	0.54	0.34	0.46	0.37	0.41	0.22	0.48	0.42	0.36	-0.04	-0.05	0.22	-0.02	-0.36
307 NUMBER CMPARSN	2	0.59	0.33	0.46	0.31	0.34	0.49	0.35	0.39	0.32	0.48	0.41	0.26	0.01	0.06	0.16	-0.05	-0.19
308 NUMBER LINE	3	0.38	0.34	0.47	0.26	0.35	0.33	0.19	0.37	0.29	0.44	0.35	0.16	-0.11	-0.04	0.06	-0.14	-0.15
309 APPLICATION	4	0.49	0.31	0.42	0.50	0.22	0.51	0.38	0.51	0.04	0.44	0.32	0.26	0.09	0.06	0.13	-0.07	-0.06
310 RATIONALS	5	-0.03	0.04	0.03	-0.10	0.08	0.02	-0.01	-0.14	0.09	0.07	0.07	0.02	-0.14	0.09	-0.04	-0.09	0.02
311 COMPUTE:ADD	6	0.42	0.41	0.36	0.47	0.24	0.44	0.48	0.39	0.14	0.54	0.49	0.42	-0.02	0.18	0.12	-0.04	-0.10
312 COMPUTE:SUBT	7	0.45	0.40	0.45	0.47	0.24	0.50	0.36	0.40	0.12	0.53	0.44	0.41	-0.08	0.12	0.04	-0.17	-0.07
313 COMPURE:MULT	8	0.29	0.34	0.13	0.28	0.06	0.36	0.25	0.36	0.17	0.20	0.26	0.35	-0.07	-0.03	0.13	0.07	-0.17
321 IDFY TRIANGS	9	0.30	0.22	0.23	0.25	0.12	0.26	0.21	0.24	0.10	0.19	0.27	0.03	0.13	-0.09	0.33	0.21	-0.26
322 IDFY RECTS	10	0.44	0.17	0.35	0.36	0.14	0.29	0.21	0.33	0.14	0.24	0.37	0.13	0.08	-0.23	0.34	0.24	-0.35
323 CURVD FIGS	11	-0.35	-0.19	-0.30	-0.19	-0.20	-0.29	-0.18	-0.20	-0.32	-0.25	-0.34	-0.06	-0.06	0.13	-0.36	-0.10	0.31
328 CMPREHEN:GROUP	12	0.30	0.42	0.33	0.38	0.18	0.33	0.25	0.18	0.06	0.33	0.19	0.22	0.02	0.18	0.21	0.16	-0.32
329 CMPREHEN:INDIV	13	0.56	0.42	0.53	0.51	0.27	0.50	0.41	0.47	0.23	0.61	0.51	0.35	-0.10	0.09	0.02	-0.05	-0.13
A209 #RT:SAT TOTAL	14	0.59	0.50	0.44	0.60	0.22	0.53	0.37	0.50	0.17	0.54	0.47	0.40	0.11	-0.04	0.22	-0.04	-0.24
M324 KULH AND:IQ,	15	0.69	0.57	0.54	0.58	0.35	0.59	0.46	0.53	0.26	0.64	0.53	0.58	-0.05	0.03	0.20	-0.05	-0.17
501 VOCABULARY	16	1.00	0.46	0.61	0.53	0.28	0.59	0.40	0.62	0.32	0.62	0.55	0.37	0.04	-0.06	0.24	0.03	-0.25
502 COMPREHENSION	17		1.00	0.40	0.48	0.16	0.48	0.38	0.42	0.15	0.49	0.50	0.46	0.03	-0.07	0.28	0.03	-0.33
503 NUMBER CMPARSN	18			1.00	0.48	0.29	0.55	0.34	0.48	0.28	0.60	0.37	0.27	-0.02	0.02	0.11	-0.02	-0.27
504 PLACE VALUE	19				1.00	0.31	0.56	0.48	0.45	0.04	0.51	0.42	0.51	0.15	-0.05	0.22	0.03	-0.34
505 NUMBER LINE	20					1.00	0.25	0.38	0.29	0.25	0.20	0.14	0.27	-0.01	-0.00	0.03	-0.08	-0.12
506 APPLICATION	21						1.00	0.48	0.53	0.27	0.66	0.62	0.56	0.11	0.07	0.24	-0.06	-0.28
507 APPLICATION	22							1.00	0.41	0.20	0.43	0.41	0.39	0.01	-0.08	0.15	-0.04	-0.20
508 ORDR:PICSET:GP	23								1.00	0.21	0.51	0.52	0.38	0.07	-0.08	0.11	-0.02	-0.18
509 COUNTING	24									1.00	0.23	0.24	0.21	-0.09	-0.03	0.0	-0.16	-0.06
510 COMPUTE:ADD	25										1.00	0.69	0.48	0.01	0.07	0.23	-0.13	-0.17
511 COMPUTE:SUBT	26											1.00	0.56	0.14	-0.04	0.22	-0.14	-0.08
512 COMPUTE:MULT	27												1.00	-0.06	-0.01	0.15	-0.13	-0.07
521 IDFY POLYGS	28													1.00	-0.36	0.11	0.05	-0.03
522 CRVD&OPEN FIGS	29														1.00	-0.25	-0.06	0.11
523 IDFY TRIANGS	30															1.00	0.33	-0.39
524 CONGRUENCE	31																1.00	-0.39
525 SIMILARITY	32																	1.00

N = 92 FOR CELL C1

(CONTINUED)

TABLE A7.5
(FIFTH PAGE)

MATHEMATICS SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.55	0.39	0.55	0.09	0.45	0.46	0.39	-0.03	0.12	0.06	0.45	0.27	0.34	0.47
307 NUMBER CMPARSN	2		1.00	0.45	0.57	0.13	0.39	0.32	0.15	0.27	0.26	-0.16	0.44	0.33	0.39	0.47
308 NUMBER LINE	3			1.00	0.49	0.28	0.38	0.34	0.27	0.06	0.19	0.09	0.44	0.16	0.41	0.51
309 APPLICATION	4				1.00	0.19	0.49	0.49	0.35	0.10	0.19	-0.04	0.58	0.21	0.43	0.51
310 RATIONALS	5					1.00	0.23	0.35	0.17	0.15	0.26	-0.02	0.18	0.15	-0.10	0.32
311 COMPUTE:ADD	6						1.00	0.66	0.44	0.06	0.19	-0.05	0.34	0.28	0.41	0.58
312 COMPUTE:SUBT	7							1.00	0.39	0.20	0.27	-0.01	0.34	0.41	0.33	0.65
313 COMPURE:MULT	8								1.00	0.01	0.21	0.16	0.48	-0.01	0.34	0.39
321 IDFY TRIANGS	9									1.00	0.51	-0.52	0.37	-0.02	0.16	0.19
322 IDFY RECTS	10										1.00	-0.39	0.23	0.00	0.14	0.27
323 CURVD FIGS	11											1.00	-0.15	0.16	0.01	0.04
328 CMPREHEN:GROUP	12												1.00	0.05	0.38	0.39
329 CMPREHEN:INDIV	13													1.00	0.20	0.35
A209 #RT:SAT TOTAL	14														1.00	0.44
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
306 PLACE VALUE	1	0.52	0.63	0.43	0.62	0.07	0.51	0.30	0.46	0.01	0.41	0.52	0.59	0.03	0.07	0.21	-0.06	0.13
307 NUMBER CMPARSN	2	0.52	0.48	0.41	0.51	0.26	0.56	0.29	0.44	0.10	0.21	0.43	0.45	-0.06	-0.14	0.27	-0.04	-0.05
308 NUMBER LINE	3	0.40	0.37	0.36	0.22	0.13	0.54	0.30	0.38	0.13	0.28	0.42	0.49	-0.21	-0.10	0.09	0.09	-0.00
309 APPLICATION	4	0.65	0.57	0.53	0.57	0.11	0.67	0.32	0.33	0.14	0.43	0.58	0.48	-0.19	-0.10	0.21	0.01	0.05
310 RATIONALS	5	0.23	0.24	0.11	0.11	0.12	0.23	0.39	0.13	0.11	0.08	0.15	0.33	0.15	0.08	0.21	-0.07	0.11
311 COMPUTE:ADD	6	0.42	0.45	0.51	0.44	0.23	0.56	0.20	0.30	0.31	0.42	0.52	0.48	0.08	0.05	0.15	0.23	-0.03
312 COMPUTE:SUBT	7	0.50	0.47	0.38	0.46	-0.08	0.59	0.20	0.33	0.17	0.38	0.59	0.60	0.05	0.05	0.28	-0.06	0.05
313 COMPURE:MULT	8	0.35	0.32	0.23	0.16	0.02	0.34	0.44	0.20	0.11	0.25	0.32	0.46	0.02	0.19	0.23	0.13	0.04
321 IDFY TRIANGS	9	0.06	0.24	0.14	0.07	0.09	0.19	0.04	0.09	-0.18	0.07	0.17	0.16	0.04	-0.11	0.15	-0.01	-0.12
322 IDFY RECTS	10	0.07	0.23	0.24	0.17	0.12	0.22	0.18	0.32	-0.16	0.16	0.27	0.27	-0.00	0.04	0.17	0.01	-0.11
323 CURVD FIGS	11	0.06	0.00	-0.09	-0.06	-0.29	0.06	0.12	0.04	0.33	-0.09	-0.20	0.04	-0.01	-0.06	-0.11	0.15	0.06
328 CMPREHEN:GROUP	12	0.53	0.44	0.49	0.35	0.11	0.42	0.25	0.34	-0.04	0.37	0.42	0.50	0.06	0.05	0.23	0.05	0.16
329 CMPREHEN:INDIV	13	0.31	0.27	0.22	0.17	-0.25	0.09	0.17	0.12	0.25	0.13	0.14	0.16	0.14	-0.12	0.31	-0.06	-0.03
A209 #RT:SAT TOTAL	14	0.47	0.42	0.37	0.35	0.22	0.46	0.37	0.25	-0.07	0.44	0.43	0.47	-0.02	0.04	0.32	-0.10	-0.12
M324 KULH AND:IQ	15	0.55	0.50	0.39	0.43	0.06	0.49	0.50	0.34	0.11	0.35	0.43	0.59	0.08	-0.07	0.26	-0.07	0.14
501 VOCABULARY	16	1.00	0.49	0.50	0.52	0.07	0.56	0.43	0.42	0.07	0.41	0.56	0.55	-0.14	-0.04	0.33	-0.12	0.22
502 COMPREHENSION	17		1.00	0.46	0.50	0.15	0.47	0.27	0.38	-0.03	0.43	0.50	0.50	0.04	-0.04	0.19	-0.12	0.11
503 NUMBER CMPARSN	18			1.00	0.39	0.13	0.48	0.38	0.33	0.13	0.64	0.48	0.57	-0.13	0.08	0.21	-0.06	0.06
504 PLACE VALUE	19				1.00	0.27	0.58	0.12	0.38	0.03	0.50	0.56	0.45	-0.13	0.12	0.04	-0.17	0.14
505 NUMBER LINE	20					1.00	0.17	0.04	-0.00	-0.11	0.28	0.18	-0.02	0.03	-0.01	0.03	0.07	-0.23
506 APPLICATION	21						1.00	0.25	0.39	0.16	0.45	0.56	0.65	-0.04	-0.07	0.18	-0.03	0.04
507 APPLICATION	22							1.00	0.22	0.06	0.32	0.24	0.54	-0.07	0.08	0.25	-0.31	0.16
508 ORDR:PICSET:GP	23								1.00	0.09	0.19	0.48	0.42	0.03	-0.05	0.17	-0.14	0.37
509 COUNTING	24									1.00	0.09	0.12	0.06	0.16	0.16	-0.18	0.12	0.09
510 COMPUTE:ADD	25										1.00	0.58	0.44	-0.13	0.02	0.12	-0.06	0.03
511 COMPUTE:SUBT	26											1.00	0.56	-0.11	-0.11	0.10	-0.21	0.24
512 COMPUTE:MULT	27												1.00	0.01	0.13	0.23	-0.25	0.26
521 IDFY POLYGS	28													1.00	0.05	0.26	-0.00	0.09
522 CRVDCOPEN FIGS	29														1.00	-0.09	-0.10	0.13
523 IDFY TRIANGS	30															1.00	-0.12	-0.20
524 CONGRUENCE	31																1.00	-0.51
525 SIMILARITY	32																	1.00

N = 50 FOR CELL D1

(CONTINUED)

TABLE A7.5
(SIXTH PAGE)

WISC SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.50	0.36	0.55	-0.03	0.52	0.58	0.47	0.05	0.32	-0.03	0.34	0.46	0.42	0.13
307 NUMBER CMPARSN	2		1.00	0.13	0.45	-0.08	0.15	0.21	0.22	0.07	0.35	-0.15	0.10	0.07	0.21	0.15
308 NUMBER LINE	3			1.00	0.30	0.04	0.34	0.40	0.21	-0.06	0.13	0.12	0.25	0.16	0.32	0.21
309 APPLICATION	4				1.00	0.14	0.45	0.52	0.40	-0.02	0.19	-0.02	0.40	0.35	0.40	0.29
310 RATIONALS	5					1.00	-0.14	0.08	-0.01	0.01	0.05	-0.07	0.22	0.24	0.11	-0.04
311 COMPUTE:ADD	6						1.00	0.58	0.32	0.05	0.11	-0.10	0.24	0.36	0.37	0.22
312 COMPUTE:SUBT	7							1.00	0.33	-0.10	0.22	0.02	0.21	0.42	0.50	0.30
313 COMPURE:MULT	8								1.00	-0.07	0.16	0.10	0.37	0.36	0.41	0.10
321 IDFY TRIANGS	9									1.00	0.29	-0.25	0.03	-0.24	-0.07	-0.04
322 IDFY RECTS	10										1.00	-0.40	0.07	0.21	0.30	0.08
323 CURVD FIGS	11											1.00	0.08	-0.00	0.09	0.15
328 CMPREHEN:GROUP	12												1.00	0.32	0.20	0.05
329 CMPREHEN:INDIV	13													1.00	0.38	0.14
A209 #RT:SAT TOTAL	14														1.00	0.51
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24
306 PLACE VALUE	1	0.10	0.14	0.11	0.16	0.37	0.17	0.28	0.35	0.42
307 NUMBER CMPARSN	2	0.10	0.19	0.12	0.20	0.30	0.32	0.27	0.14	0.38
308 NUMBER LINE	3	0.08	0.19	0.22	0.23	0.41	0.18	0.13	0.26	0.36
309 APPLICATION	4	0.15	0.18	0.36	0.32	0.26	0.05	0.18	0.21	0.25
310 RATIONALS	5	0.22	0.20	0.10	0.24	0.10	-0.04	-0.09	-0.03	-0.02
311 COMPUTE:ADD	6	0.12	0.19	0.20	0.23	0.37	0.14	0.17	0.31	0.36
312 COMPUTE:SUBT	7	0.16	0.22	0.27	0.30	0.34	0.19	0.27	0.40	0.43
313 COMPURE:MULT	8	0.04	-0.11	0.13	0.01	0.01	0.05	-0.02	0.19	0.08
321 IDFY TRIANGS	9	-0.17	-0.07	0.01	-0.10	0.15	0.02	-0.09	0.06	0.05
322 IDFY RECTS	10	-0.02	0.14	0.35	0.22	0.25	0.25	0.09	0.21	0.30
323 CURVD FIGS	11	0.06	0.04	-0.12	-0.01	-0.00	0.05	0.15	-0.01	0.06
328 CMPREHEN:GROUP	12	0.25	0.13	-0.03	0.15	0.11	0.00	0.11	0.12	0.12
329 CMPREHEN:INDIV	13	0.17	0.10	0.09	0.16	0.18	0.10	0.12	0.22	0.23
A209 #RT:SAT TOTAL	14	0.16	0.09	0.19	0.19	0.43	0.21	0.24	0.33	0.44
M324 KULH AND:IQ	15	0.05	0.14	0.22	0.19	0.33	0.21	0.34	0.18	0.39
M201 SET A:RAVEN	16	1.00	0.37	0.07	0.63	0.02	0.01	0.11	-0.01	0.05
M202 SET AB:RAVEN	17		1.00	0.39	0.86	0.23	0.16	0.30	0.17	0.31
M203 SET B:RAVEN	18			1.00	0.67	0.22	0.14	0.13	0.24	0.26
M204 #OTAL:RAVEN	19				1.00	0.23	0.15	0.26	0.19	0.30
M305 VOCB:WISC SCA	20					1.00	0.44	0.26	0.35	0.76
M306 SIML:WISC SCA	21						1.00	0.09	0.27	0.70
M307 P CM:WISC SCA	22							1.00	0.32	0.59
M308 BLKD:WISC SCA	23								1.00	0.69
M311 TOTL:WISC SCA	24									1.00

N = 84 FOR CELL A1

(CONTINUED)

TABLE A7.5
(SEVENTH PAGE)

WISC SCALES

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.23	0.25	0.51	0.12	0.35	0.38	0.35	0.21	0.26	0.00	0.31	0.26	0.34	0.47
307 NUMBER CMPARSN	2		1.00	0.20	0.23	0.02	0.23	0.31	0.15	0.17	0.15	-0.11	0.18	0.22	0.19	0.30
308 NUMBER LINE	3			1.00	0.12	0.15	0.40	0.30	0.10	0.09	0.02	0.17	0.24	0.05	0.30	0.34
309 APPLICATION	4				1.00	0.07	0.52	0.56	0.42	0.25	0.09	0.00	0.29	0.15	0.37	0.28
310 RATIONALS	5					1.00	0.21	0.12	-0.00	-0.20	-0.10	0.05	-0.04	-0.02	0.13	0.14
311 COMPUTE:ADD	6						1.00	0.62	0.33	0.02	-0.10	0.24	0.24	0.19	0.47	0.38
312 COMPUTE:SUBT	7							1.00	0.41	0.08	-0.06	0.15	0.39	0.40	0.52	0.33
313 COMPURE:MULT	8								1.00	0.07	0.04	0.08	0.30	0.37	0.40	0.29
321 IDFY TRIANGS	9									1.00	0.47	-0.36	0.33	-0.10	0.01	0.10
322 IDFY RECTS	10										1.00	-0.21	0.17	0.04	0.04	0.22
323 CURVD FIGS	11											1.00	-0.13	0.06	0.34	0.01
328 CMPREHEN:GROUP	12												1.00	0.29	0.31	0.36
329 CMPREHEN:INDIV	13													1.00	0.31	0.21
A209 #RT:SAT TOTAL	14														1.00	0.38
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24
306 PLACE VALUE	1	0.03	0.19	0.20	0.19	0.44	0.40	0.22	0.32	0.47
307 NUMBER CMPARSN	2	0.02	0.05	0.13	0.09	0.28	0.29	-0.02	0.05	0.21
308 NUMBER LINE	3	-0.05	0.31	0.35	0.29	0.23	0.39	0.14	0.37	0.40
309 APPLICATION	4	0.04	0.07	0.10	0.09	0.30	0.33	0.08	0.21	0.32
310 RATIONALS	5	-0.12	0.07	0.13	0.04	0.19	0.09	-0.08	0.06	0.09
311 COMPUTE:ADD	6	-0.00	0.16	0.19	0.16	0.15	0.30	0.02	0.35	0.29
312 COMPUTE:SUBT	7	0.01	0.19	0.17	0.18	0.27	0.34	0.04	0.29	0.33
313 COMPURE:MULT	8	0.14	0.08	0.11	0.14	0.30	0.35	0.12	0.31	0.38
321 IDFY TRIANGS	9	0.09	0.19	0.18	0.21	0.10	-0.05	0.14	0.02	0.07
322 IDFY RECTS	10	0.30	0.27	0.29	0.37	0.11	0.12	0.18	0.13	0.18
323 CURVD FIGS	11	0.08	0.02	-0.03	0.03	0.12	0.21	-0.12	0.17	0.14
328 CMPREHEN:GROUP	12	-0.03	0.23	0.20	0.19	0.05	0.19	0.08	0.22	0.19
329 CMPREHEN:INDIV	13	0.13	0.15	0.08	0.16	0.20	0.23	0.03	0.17	0.22
A209 #RT:SAT TOTAL	14	0.04	0.05	0.05	0.06	0.20	0.30	-0.16	0.16	0.19
M324 KULH AND:IQ	15	0.10	0.38	0.48	0.43	0.45	0.41	0.23	0.40	0.51
M201 SET A:RAVEN	16	1.00	0.32	0.23	0.64	0.14	0.10	0.24	0.38	0.29
M202 SET AB:RAVEN	17		1.00	0.50	0.85	0.30	0.15	0.31	0.53	0.44
M203 SET B:RAVEN	18			1.00	0.77	0.36	0.35	0.22	0.58	0.51
M204 TOTAL:RAVEN	19				1.00	0.36	0.26	0.34	0.66	0.55
M305 VOCB:WISC SCA	20					1.00	0.60	0.34	0.29	0.76
M306 SIML:WISC SCA	21						1.00	0.24	0.46	0.81
M307 P CM:WISC SCA	22							1.00	0.33	0.63
M308 BLKD:WISC SCA	23								1.00	0.72
M311 TOTL:WISC SCA	24									1.00

N = 85 FOR CELL B1

(CONTINUED)

TABLE A7.6
(EIGHTH PAGE)

WISC SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.37	0.43	0.51	0.04	0.44	0.37	0.25	0.20	0.37	-0.28	0.35	0.37	0.50	0.53
307 NUMBER CMPARSN	2		1.00	0.48	0.38	0.15	0.20	0.31	0.26	0.31	0.36	-0.42	0.40	0.42	0.42	0.40
308 NUMBER LINE	3			1.00	0.31	0.07	0.29	0.45	0.12	0.14	0.23	-0.25	0.23	0.53	0.46	0.35
309 APPLICATION	4				1.00	-0.19	0.40	0.46	0.30	0.31	0.22	-0.16	0.45	0.39	0.44	0.45
310 RATIONALS	5					1.00	0.02	0.06	-0.13	-0.06	-0.04	-0.02	-0.11	-0.02	0.10	0.10
311 COMPUTE:ADD	6						1.00	0.57	0.19	0.10	0.18	-0.10	0.33	0.40	0.56	0.47
312 COMPUTE:SUBT	7							1.00	0.21	0.07	0.21	-0.13	0.29	0.45	0.51	0.52
313 COMPURE:MULT	8								1.00	0.16	0.10	-0.14	0.35	0.25	0.21	0.32
321 IDFY TRIANGS	9									1.00	0.40	-0.46	0.32	0.30	0.22	0.19
322 IDFY RECTS	10										1.00	-0.59	0.20	0.37	0.48	0.24
323 CURVD FIGS	11											1.00	-0.21	-0.27	-0.23	-0.17
328 CMPREHEN:GROUP	12												1.00	0.39	0.37	0.33
329 CMPREHEN:INDIV	13													1.00	0.49	0.52
A209 #RT:SAT TOTAL	14														1.00	0.60
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24
306 PLACE VALUE	1	0.35	0.17	0.28	0.33	-0.01	0.29	0.17	0.46	0.35
307 NUMBER CMPARSN	2	0.17	0.10	0.26	0.22	0.02	0.23	0.14	0.26	0.25
308 NUMBER LINE	3	0.27	0.07	0.18	0.21	0.04	0.20	0.15	0.27	0.26
309 APPLICATION	4	0.21	0.28	0.44	0.40	0.18	0.29	0.11	0.32	0.35
310 RATIONALS	5	0.03	-0.19	-0.10	-0.13	-0.03	-0.08	0.06	0.11	0.02
311 COMPUTE:ADD	6	0.30	0.01	0.14	0.17	0.08	0.28	0.08	0.38	0.32
312 COMPUTE:SUBT	7	0.23	0.10	0.15	0.20	0.06	0.22	-0.07	0.30	0.20
313 COMPURE:MULT	8	0.21	0.21	0.25	0.29	0.04	0.20	0.13	0.36	0.29
321 IDFY TRIANGS	9	0.03	0.07	0.19	0.13	0.11	0.23	0.15	0.10	0.23
322 IDFY RECTS	10	0.06	0.15	0.13	0.15	0.11	0.33	-0.01	0.10	0.22
323 CURVD FIGS	11	-0.11	-0.04	-0.08	-0.09	-0.11	-0.34	-0.06	0.01	-0.20
328 CMPREHEN:GROUP	12	0.13	0.16	0.22	0.22	0.31	0.34	0.06	0.35	0.42
329 CMPREHEN:INDIV	13	0.22	0.19	0.30	0.31	0.17	0.30	0.19	0.31	0.38
A209 #RT:SAT TOTAL	14	0.37	0.25	0.35	0.41	0.18	0.47	0.15	0.44	0.49
M324 KULH AND:IQ	15	0.41	0.31	0.40	0.48	0.16	0.29	0.24	0.69	0.53
M201 SET A:RAVEN	16	1.00	0.35	0.32	0.68	0.01	0.13	0.26	0.49	0.34
M202 SET AB:RAVEN	17		1.00	0.49	0.83	0.19	0.24	0.09	0.28	0.31
M203 SET B:RAVEN	18			1.00	0.79	0.22	0.18	0.23	0.39	0.40
M204 TOTAL:RAVEN	19				1.00	0.19	0.25	0.24	0.49	0.45
M305 VOCB:WISC SCA	20					1.00	0.44	0.14	0.10	0.67
M306 SIML:WISC SCA	21						1.00	0.07	0.19	0.68
M307 P CM:WISC SCA	22							1.00	0.32	0.58
M308 BLKD:WISC SCA	23								1.00	0.62
M311 TOTL:WISC SCA	24									1.00

N = 90 FOR CELL C1

(CONTINUED)

TABLE A7.5
(NINTH PAGE)

WISC SCALES

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
306 PLACE VALUE	1	1.00	0.47	0.39	0.53	0.06	0.40	0.42	0.32	0.03	0.06	0.08	0.44	0.23	0.37	0.44
307 NUMBER CMPARSN	2		1.00	0.48	0.51	0.17	0.29	0.22	0.05	0.33	0.28	-0.18	0.37	0.32	0.42	0.47
308 NUMBER LINE	3			1.00	0.49	0.29	0.48	0.35	0.30	0.14	0.25	-0.01	0.47	0.14	0.45	0.50
309 APPLICATION	4				1.00	0.26	0.44	0.43	0.32	0.18	0.27	-0.12	0.58	0.23	0.42	0.44
310 RATIONALS	5					1.00	0.36	0.40	0.16	0.21	0.30	-0.10	0.19	0.24	-0.10	0.38
311 COMPUTE:ADD	6						1.00	0.63	0.38	0.12	0.30	-0.06	0.35	0.35	0.47	0.56
312 COMPUTE:SUBT	7							1.00	0.35	0.29	0.32	-0.05	0.35	0.38	0.32	0.62
313 COMPURE:MULT	8								1.00	0.06	0.20	0.15	0.45	0.09	0.36	0.32
321 IDFY TRIANGS	9									1.00	0.61	-0.56	0.44	-0.03	0.20	0.25
322 IDFY RECTS	10										1.00	-0.36	0.22	-0.00	0.16	0.32
323 CURVD FIGS	11											1.00	-0.29	0.29	0.01	0.02
328 CMPREHEN:GROUP	12												1.00	0.11	0.42	0.37
329 CMPREHEN:INDIV	13													1.00	0.21	0.44
A209 ART:SAT TOTAL	14														1.00	0.44
M324 KULH AND:IQ	15															1.00

		16	17	18	19	20	21	22	23	24
306 PLACE VALUE	1	0.38	0.57	0.52	0.61	0.22	0.28	0.05	0.20	0.29
307 NUMBER CMPARSN	2	0.14	0.38	0.21	0.32	0.15	0.37	-0.04	0.18	0.25
308 NUMBER LINE	3	0.34	0.53	0.18	0.45	0.36	0.45	0.20	0.34	0.50
309 APPLICATION	4	0.35	0.62	0.46	0.61	0.35	0.58	0.10	0.11	0.43
310 RATIONALS	5	0.10	0.30	0.33	0.31	0.32	0.32	0.31	0.39	0.49
311 COMPUTE:ADD	6	0.30	0.50	0.42	0.51	0.31	0.35	0.27	0.27	0.44
312 COMPUTE:SUBT	7	0.09	0.46	0.31	0.38	0.24	0.42	0.22	0.30	0.43
313 COMPURE:MULT	8	0.15	0.41	0.27	0.36	0.25	0.37	-0.09	0.24	0.29
321 IDFY TRIANGS	9	0.05	0.31	0.15	0.24	-0.03	0.33	0.18	0.20	0.23
322 IDFY RECTS	10	0.07	0.29	0.16	0.23	-0.02	0.23	0.23	0.07	0.17
323 CURVD FIGS	11	0.03	-0.07	0.02	-0.02	0.20	-0.20	0.13	0.17	0.11
328 CMPREHEN:GROUP	12	0.44	0.55	0.40	0.58	0.28	0.55	0.01	0.30	0.43
329 CMPREHEN:INDIV	13	-0.08	0.18	0.12	0.11	0.17	0.02	0.13	0.21	0.19
A209 ART:SAT TOTAL	14	0.13	0.32	0.02	0.21	0.48	0.44	0.02	-0.04	0.37
M324 KULH AND:IQ	15	0.17	0.52	0.30	0.44	0.35	0.28	0.29	0.45	0.49
M201 SET A:RAVEN	16	1.00	0.46	0.44	0.72	0.22	0.27	0.10	0.34	0.34
M202 SET AB:RAVEN	17		1.00	0.59	0.89	0.31	0.56	0.23	0.28	0.51
M203 SET B:RAVEN	18			1.00	0.83	0.30	0.37	0.41	0.44	0.54
M204 TOTAL:RAVEN	19				1.00	0.35	0.52	0.31	0.42	0.58
M305 VOCB:WISC SCA	20					1.00	0.61	0.23	0.25	0.82
M306 SIML:WISC SCA	21						1.00	0.17	0.10	0.72
M307 P CM:WISC SCA	22							1.00	0.28	0.58
M308 BLKD:WISC SCA	23								1.00	0.56
M311 TOTL:WISC SCA	24									1.00

N = 41 FOR CELL D1

(CONTINUED)

TABLE A7.5
(TENTH PAGE)

SAT SCALES

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.51	0.39	0.57	0.01	0.54	0.61	0.45	0.06	0.31	-0.05	0.30	0.48	0.43	0.13	0.51
307 NUMBER CMPARSN	2		1.00	0.15	0.45	-0.06	0.16	0.26	0.24	0.06	0.27	-0.12	0.11	0.14	0.23	0.15	0.29
308 NUMBER LINE	3			1.00	0.33	0.06	0.36	0.42	0.20	-0.05	0.15	0.09	0.22	0.20	0.34	0.22	0.36
309 APPLICATION	4				1.00	0.18	0.48	0.56	0.39	0.01	0.21	-0.03	0.33	0.41	0.39	0.29	0.52
310 RATIONALS	5					1.00	-0.09	0.11	-0.01	0.03	0.06	-0.09	0.19	0.27	0.12	-0.02	0.20
311 COMPUTE:ADD	6						1.00	0.61	0.31	0.06	0.13	-0.10	0.21	0.39	0.36	0.22	0.44
312 COMPUTE:SUBT	7							1.00	0.33	-0.08	0.20	-0.01	0.17	0.48	0.52	0.32	0.66
313 COMPURE:MULT	8								1.00	-0.05	0.11	0.10	0.38	0.37	0.41	0.10	0.47
321 IDFY TRIANGS	9									1.00	0.31	-0.27	0.02	-0.19	-0.07	-0.06	-0.17
322 IDFY RECTS	10										1.00	-0.42	0.00	0.15	0.24	0.04	0.16
323 CURVD FIGS	11											1.00	0.09	0.00	0.10	0.18	0.12
328 CMPREHEN:GROUP	12												1.00	0.28	0.21	0.07	0.27
329 CMPREHEN:INDIV	13													1.00	0.39	0.15	0.48
A209 #RT:SAT TOTAL	14														1.00	0.51	0.86
M324 KULH AND:IQ	15															1.00	0.46
A305 #RT:SAT TOTAL	16																1.00

N = 86 FOR CELL A1

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.24	0.24	0.50	0.11	0.34	0.37	0.35	0.21	0.26	-0.00	0.30	0.26	0.33	0.45	0.41
307 NUMBER CMPARSN	2		1.00	0.23	0.24	0.02	0.25	0.33	0.17	0.17	0.14	-0.11	0.20	0.22	0.21	0.29	0.23
308 NUMBER LINE	3			1.00	0.07	0.12	0.35	0.26	0.09	0.10	0.02	0.17	0.18	0.05	0.28	0.31	0.36
309 APPLICATION	4				1.00	0.06	0.50	0.55	0.43	0.26	0.09	0.01	0.27	0.15	0.37	0.26	0.33
310 RATIONALS	5					1.00	0.19	0.10	-0.01	-0.20	-0.10	0.05	-0.06	-0.02	0.12	0.14	0.01
311 COMPUTE:ADD	6						1.00	0.60	0.33	0.03	-0.10	0.24	0.21	0.19	0.45	0.37	0.45
312 COMPUTE:SUBT	7							1.00	0.42	0.09	-0.06	0.15	0.37	0.41	0.51	0.31	0.44
313 COMPURE:MULT	8								1.00	0.08	0.04	0.10	0.31	0.36	0.41	0.28	0.39
321 IDFY TRIANGS	9									1.00	0.46	-0.36	0.34	-0.10	0.02	0.10	0.04
322 IDFY RECTS	10										1.00	-0.21	0.17	0.04	0.04	0.22	0.06
323 CURVD FIGS	11											1.00	-0.13	0.06	0.35	0.01	0.24
328 CMPREHEN:GROUP	12												1.00	0.29	0.30	0.35	0.33
329 CMPREHEN:INDIV	13													1.00	0.31	0.21	0.14
A209 #RT:SAT TOTAL	14														1.00	0.36	0.76
M324 KULH AND:IQ	15															1.00	0.50
A305 #RT:SAT TOTAL	16																1.00

N = 86 FOR CELL B1

(CONTINUED)

TABLE A7.5
(ELEVENTH PAGE)

SAT SCALES

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.37	0.44	0.50	0.03	0.44	0.36	0.27	0.19	0.36	-0.28	0.36	0.37	0.52	0.53	0.41
307 NUMBER CMPARSN	2		1.00	0.47	0.37	0.13	0.21	0.32	0.27	0.30	0.36	-0.42	0.38	0.44	0.43	0.42	0.26
308 NUMBER LINE	3			1.00	0.28	0.06	0.28	0.45	0.14	0.14	0.25	-0.24	0.25	0.54	0.48	0.36	0.28
309 APPLICATION	4				1.00	-0.21	0.36	0.43	0.32	0.29	0.19	-0.10	0.47	0.37	0.45	0.46	0.36
310 RATIONALS	5					1.00	-0.02	0.04	-0.14	-0.05	-0.04	-0.01	-0.09	-0.04	0.08	0.07	0.05
311 COMPUTE:ADD	6						1.00	0.56	0.20	0.06	0.16	-0.06	0.28	0.42	0.55	0.50	0.49
312 COMPUTE:SUBT	7							1.00	0.23	0.06	0.22	-0.12	0.29	0.46	0.54	0.53	0.45
313 COMPURE:MULT	8								1.00	0.17	0.13	-0.17	0.36	0.27	0.23	0.32	0.16
321 IDFY TRIANGS	9									1.00	0.40	-0.46	0.33	0.30	0.22	0.18	0.20
322 IDFY RECTS	10										1.00	-0.60	0.22	0.39	0.50	0.24	0.35
323 CURVD FIGS	11											1.00	-0.22	-0.27	-0.24	-0.17	-0.20
328 CMPREHEN:GROUP	12												1.00	0.39	0.36	0.32	0.29
329 CMPREHEN:INDIV	13													1.00	0.53	0.52	0.43
A209 #RT:SAT TOTAL	14														1.00	0.62	0.81
M324 KULH AND:IQ	15															1.00	0.55
A305 #RT:SAT TOTAL	16																1.00

N = 90 FOR CELL C1

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
306 PLACE VALUE	1	1.00	0.55	0.49	0.61	0.10	0.45	0.49	0.37	-0.01	0.20	-0.03	0.46	0.28	0.32	0.42	0.39
307 NUMBER CMPARSN	2		1.00	0.48	0.59	0.16	0.40	0.32	0.18	0.28	0.29	-0.18	0.45	0.35	0.41	0.46	0.30
308 NUMBER LINE	3			1.00	0.48	0.27	0.37	0.33	0.28	0.12	0.21	0.09	0.46	0.12	0.40	0.53	0.39
309 APPLICATION	4				1.00	0.23	0.51	0.50	0.39	0.12	0.19	-0.02	0.59	0.22	0.44	0.50	0.50
310 RATIONALS	5					1.00	0.25	0.34	0.23	0.20	0.28	-0.06	0.23	0.18	-0.06	0.31	0.0
311 COMPUTE:ADD	6						1.00	0.54	0.46	0.09	0.21	-0.05	0.36	0.32	0.42	0.58	0.44
312 COMPUTE:SUBT	7							1.00	0.38	0.24	0.29	-0.03	0.35	0.38	0.31	0.63	0.30
313 COMPURE:MULT	8								1.00	0.05	0.25	0.09	0.52	0.04	0.37	0.36	0.39
321 IDFY TRIANGS	9									1.00	0.51	-0.51	0.38	-0.03	0.19	0.17	-0.04
322 IDFY RECTS	10										1.00	-0.36	0.25	-0.01	0.17	0.28	0.05
323 CURVD FIGS	11											1.00	-0.17	0.22	-0.01	0.06	0.09
328 CMPREHEN:GROUP	12												1.00	0.07	0.40	0.36	0.35
329 CMPREHEN:INDIV	13													1.00	0.24	0.40	0.29
A209 #RT:SAT TOTAL	14														1.00	0.65	0.82
M324 KULH AND:IQ	15															1.00	0.45
A305 #RT:SAT TOTAL	16																1.00

N = 51 FOR CELL D1

Table A7.6
Regression Weights by Cell
for End-of-Second-Grade Scales
Using End-of-First-Grade Scales as Covariates
Longitudinal Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 501 VOCABULARY (GROUP)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.102	0.090	0.325	0.138	0.192	0.223
309 APPLICATION	0.232	0.248	0.169	0.286	0.230	0.250
312 COMPUTE:SUB	0.443	0.136	0.034	0.120	0.216	0.239
M324 IQ:KUHL-ANDER	0.069	0.235	0.508	0.177	0.234	0.243

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.222	0.196	0.704	0.299	0.417	0.482
309 APPLICATION	0.466	0.499	0.339	0.575	0.463	0.503
312 COMPUTE:SUB	0.448	0.137	0.034	0.121	0.219	0.241
M324 IQ:KUHL-ANDER	0.016	0.056	0.121	0.042	0.056	0.058
RSQ	0.395	0.444	0.609	0.518	0.448	0.528
R	0.629	0.666	0.780	0.719	0.669	0.727
F	13.895	16.565	34.985	12.878	65.013	89.819
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 502 WHOLE NUMBER COMPREHENSION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
308 NUMBER LINE	0.330	-0.007	0.073	0.053	0.141	0.141
312 COMPUTE:SUB	0.340	0.199	0.065	0.214	0.215	0.266
A209 #RT:SAT TOTAL	0.157	0.164	0.194	0.223	0.184	0.194
M324 IQ:KUHL-ANDER	0.131	0.265	0.418	0.260	0.245	0.223

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
308 NUMBER LINE	0.481	-0.010	0.106	0.078	0.205	0.206
312 COMPUTE:SUB	0.201	0.118	0.038	0.127	0.127	0.157
A209 #RT:SAT TOTAL	0.019	0.020	0.023	0.027	0.022	0.023
M324 IQ:KUHL-ANDER	0.018	0.037	0.058	0.036	0.034	0.031
RSQ	0.529	0.258	0.383	0.351	0.354	0.413
R	0.728	0.508	0.619	0.593	0.595	0.643
F	23.049	7.298	14.418	6.496	44.048	56.640
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.6
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 503 NUMBER COMPARISON: ORDER

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.176	0.064	0.164	0.122	0.146	0.179
308 NUMBER LINE	0.235	0.250	0.172	0.063	0.203	0.253
309 APPLICATION	0.211	0.159	0.127	0.246	0.170	0.183
312 COMPUTE:SUB	0.310	0.058	0.093	0.101	0.161	0.204
M324 IQ:KUHL-ANDER	0.072	0.171	0.292	0.045	0.141	0.128

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.226	0.082	0.210	0.156	0.187	0.229
308 NUMBER LINE	0.346	0.368	0.253	0.093	0.300	0.372
309 APPLICATION	0.251	0.189	0.151	0.292	0.202	0.218
312 COMPUTE:SUB	0.185	0.035	0.056	0.060	0.096	0.122
M324 IQ:KUHL-ANDER	0.010	0.024	0.041	0.006	0.020	0.018
RSQ	0.408	0.366	0.442	0.333	0.375	0.491
R	0.638	0.605	0.665	0.577	0.613	0.700
F	11.563	9.467	14.113	4.701	38.454	61.623
P	0.000	0.000	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 504 PLACE VALUE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALLE	0.217	0.296	0.244	0.375	0.275	0.312
309 APPLICATION	0.154	0.292	0.203	0.177	0.207	0.213
312 COMPUTE:SUB	0.255	0.283	0.116	0.126	0.208	0.222
A209 #RT:SAT TOTAL	0.179	0.120	0.343	0.095	0.192	0.201

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALLE	0.237	0.323	0.266	0.410	0.300	0.341
309 APPLICATION	0.205	0.388	0.269	0.235	0.276	0.283
312 COMPUTE:SUB	0.174	0.193	0.079	0.086	0.141	0.151
A209 #RT:SAT TOTAL	0.025	0.016	0.047	0.013	0.026	0.028
RSQ	0.443	0.672	0.488	0.452	0.500	0.585
R	0.665	0.820	0.699	0.672	0.707	0.765
F	17.265	41.480	21.459	9.676	80.083	112.855
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.6
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 505 NUMBER LINE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.117	0.371	0.154	0.309	0.198	0.222
308 NUMBER LINE	0.125	0.109	0.173	0.065	0.122	0.182
M324 IQ:KUHL-ANDER	0.229	0.232	0.194	-0.117	0.185	0.183

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.104	0.333	0.138	0.277	0.177	0.199
308 NUMBER LINE	0.129	0.113	0.179	0.067	0.126	0.189
M324 IQ:KUHL-ANDER	0.023	0.023	0.019	-0.012	0.018	0.018
RSQ	0.131	0.233	0.183	0.070	0.141	0.205
R	0.361	0.482	0.428	0.265	0.375	0.453
F	4.303	8.394	6.880	1.209	17.552	27.633
P	0.007	0.000	0.000	0.316	0.000	0.000

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DEPENDENT VARIABLE -- 506 APPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.271	0.139	0.265	0.426	0.277	0.291
312 COMPUTE:SUB	0.325	0.300	0.162	0.400	0.261	0.323
M324 IQ:KUHL-ANDER	0.173	0.251	0.366	0.019	0.235	0.222

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.312	0.160	0.304	0.489	0.318	0.334
312 COMPUTE:SUB	0.187	0.172	0.093	0.229	0.150	0.185
M324 IQ:KUHL-ANDER	0.023	0.034	0.049	0.003	0.032	0.030
RSQ	0.359	0.329	0.436	0.545	0.389	0.461
R	0.599	0.574	0.660	0.738	0.624	0.679
F	16.031	13.917	24.441	19.158	69.218	93.102
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.6
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 507 RATIONALS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.144	0.144	0.177	0.171	0.161	0.189
311 COMPUTE:ACD	0.072	0.156	0.182	-0.251	0.115	0.148
M324 IQ:KUHL-ANDER	0.258	0.213	0.209	0.499	0.258	0.275

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309 APPLICATION	0.142	0.142	0.175	0.169	0.159	0.187
311 COMPUTE:ACD	0.054	0.117	0.137	-0.189	0.087	0.111
M324 IQ:KUHL-ANDER	0.031	0.026	0.026	0.061	0.032	0.034
RSQ	0.128	0.154	0.255	0.246	0.188	0.251
R	0.357	0.393	0.505	0.496	0.434	0.501
F	3.167	5.173	10.831	5.232	23.538	34.073
P	0.030	0.002	0.000	0.003	0.000	0.000

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DEPENDENT VARIABLE -- 508 ORDERING PICTURED SETS (GROUP)

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.118	0.070	0.183	0.325	0.168	0.208
312 COMPUTE:SUB	0.397	0.194	0.149	0.215	0.253	0.321
M324 IQ:KUHL-ANDER	-0.002	0.277	0.369	0.043	0.180	0.164

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.094	0.056	0.146	0.259	0.134	0.166
312 COMPUTE:SUB	0.148	0.072	0.055	0.080	0.094	0.120
M324 IQ:KUHL-ANDER	-0.000	0.024	0.032	0.004	0.016	0.014
RSQ	0.197	0.183	0.335	0.228	0.212	0.297
R	0.444	0.428	0.579	0.478	0.461	0.545
F	7.042	6.187	15.433	4.729	28.856	45.299
P	0.000	0.001	0.000	0.006	0.000	0.000

(continued)

Table A7.6
(fifth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 509 COUNTING

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
31. COMPUTE:ACC	0.119	0.120	0.039	0.385	0.120	0.106
M324 IQ:KUHL-ANDER	0.018	-0.041	0.264	-0.015	0.072	0.086

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
311 COMPUTE:ADD	0.024	0.024	0.008	0.077	0.024	0.021
M324 IQ:KUHL-ANDER	0.001	-0.001	0.009	-0.001	0.002	0.003
RSQ	0.018	0.006	0.072	0.065	0.023	0.026
R	0.134	0.078	0.269	0.254	0.152	0.162
F	0.792	0.265	3.768	1.695	3.876	4.418
P	0.456	0.768	0.027	0.194	0.022	0.013

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DEPENDENT VARIABLE -- 510 COMPUTATION: ADDITION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.116	0.158	0.212	0.013	0.159	0.177
311 COMPUTE:ADD	0.206	0.355	0.302	0.457	0.306	0.342
312 COMPUTE:SUB	0.429	0.033	0.100	0.153	0.199	0.266
M324 IQ:KUHL-ANDER	-0.082	0.152	0.346	0.088	0.114	0.061

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.161	0.220	0.294	0.018	0.222	0.246
311 COMPUTE:ADD	0.189	0.326	0.277	0.419	0.281	0.313
312 COMPUTE:SUB	0.280	0.022	0.065	0.100	0.130	0.173
M324 IQ:KUHL-ANDER	-0.013	0.023	0.053	0.013	0.017	0.009
RSQ	0.345	0.369	0.570	0.201	0.365	0.455
R	0.587	0.608	0.755	0.448	0.604	0.674
F	11.311	12.003	29.885	2.826	45.627	64.289
P	0.000	0.000	0.000	0.036	0.000	0.000

(continued)

Table A7.6
(sixth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 511 COMPUTATION: SUBTRACTION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.141	-0.016	0.210	0.218	0.151	0.175
311 COMPUTE:ADD	0.079	0.319	0.278	0.257	0.228	0.264
312 COMPUTE:SUB	0.557	-0.010	0.075	0.451	0.227	0.284
M324 IQ:KUHL-ANDER	-0.056	0.298	0.288	-0.074	0.144	0.113

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
307 NUMBER CMPARSN	0.203	-0.023	0.304	0.315	0.218	0.253
311 COMPUTE:ADD	0.076	0.304	0.264	0.244	0.217	0.252
312 COMPUTE:SUB	0.376	-0.007	0.050	0.305	0.154	0.192
M324 IQ:KUHL-ANDER	-0.009	0.047	0.046	-0.012	0.023	0.018
RSQ	0.415	0.276	0.420	0.435	0.327	0.426
R	0.645	0.525	0.648	0.660	0.572	0.653
F	15.278	7.797	16.295	8.668	38.604	58.964
P	0.000	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 512 COMPUTATION: MULTIPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	0.120	0.225	0.028	0.354	0.150	0.214
312 COMPUTE:SUB	0.191	0.230	0.099	0.340	0.185	0.246
313 COMPUTE:MULT	-0.003	0.066	0.228	0.124	0.126	0.170
A209 #RT:SAT TOTAL	0.170	0.173	0.013	0.171	0.113	0.122
M324 IQ:KUHL-ANDER	0.125	0.100	0.341	0.199	0.191	0.166

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	0.148	0.278	0.034	0.436	0.185	0.264
312 COMPUTE:SUB	0.147	0.177	0.076	0.262	0.142	0.189
313 COMPUTE:MULT	-0.010	0.230	0.796	0.435	0.440	0.595
A209 #RT:SAT TOTAL	0.027	0.027	0.002	0.027	0.018	0.019
M324 IQ:KUHL-ANDER	0.022	0.018	0.061	0.036	0.034	0.030
RSQ	0.402	0.309	0.382	0.558	0.362	0.476
R	0.634	0.556	0.618	0.747	0.601	0.690
F	11.031	7.165	10.758	11.126	35.239	56.504
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.6
(seventh page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 521 IDENTIFYING POLYGONS

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309	APPLICATION	0.153	0.202	0.117	-0.078	0.105	0.085
321	IDFY TRIANGS	-0.005	0.120	0.065	0.020	0.040	0.084
329	CMPREHEN:INDIV	0.179	0.194	-0.119	0.094	0.070	0.103

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
309	APPLICATION	0.236	0.313	0.181	-0.121	0.162	0.131
321	IDFY TRIANGS	-0.007	0.167	0.090	0.028	0.056	0.116
329	CMPREHEN:INDIV	0.346	0.375	-0.231	0.181	0.135	0.200
	RSQ	0.060	0.050	0.051	0.081	0.023	0.034
	R	0.245	0.224	0.226	0.284	0.151	0.184
	F	2.004	1.500	1.651	1.377	2.574	3.836
	P	0.119	0.220	0.183	0.261	0.054	0.010

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DEPENDENT VARIABLE -- 522 CURVED AND OPEN FIGURES

STANDARDIZED REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
308	NUMBER LINE	-0.132	0.060	-0.110	-0.146	-0.102	-0.113
311	COMPUTE:ADD	0.072	-0.094	0.153	0.101	0.083	0.157
321	IDFY TRIANGS	0.045	-0.054	-0.128	-0.092	-0.063	-0.118
328	CMPREHEN:GROUP	0.117	0.227	0.235	0.095	0.163	0.176

RAW SCORE REGRESSION WEIGHTS

	VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
308	NUMBER LINE	-0.137	0.062	-0.113	-0.152	-0.106	-0.117
311	COMPUTE:ADD	0.043	-0.056	0.091	0.060	0.050	0.094
321	IDFY TRIANGS	0.033	-0.041	-0.096	-0.069	-0.047	-0.088
328	CMPREHEN:GROUP	0.144	0.279	0.289	0.117	0.200	0.217
	RSQ	0.018	0.068	0.084	0.053	0.034	0.063
	R	0.134	0.261	0.290	0.229	0.183	0.250
	F	0.419	1.493	2.093	0.639	2.817	5.429
	P	0.795	0.212	0.088	0.637	0.025	0.000

(continued)

Table A7.6
(eighth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 523 IDENTIFYING TRIANGLES

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
313 COMPUTE:MULT	-0.092	0.221	0.079	0.125	0.122	0.161
321 IDFY TRIANGS	0.331	0.171	0.282	0.088	0.228	0.233
M324 IQ:KUHL-ANDER	0.098	-0.136	0.122	0.172	0.052	0.059

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
313 COMPUTE:MULT	-0.243	0.584	0.209	0.330	0.324	0.425
321 IDFY TRIANGS	0.339	0.175	0.288	0.090	0.233	0.238
M324 IQ:KUHL-ANDER	0.013	-0.019	0.017	0.023	0.007	0.008
RSQ	0.058	0.136	0.125	0.102	0.075	0.097
R	0.240	0.368	0.353	0.319	0.274	0.312
F	1.771	4.347	4.325	1.733	8.615	11.469
P	0.158	0.007	0.007	0.173	0.000	0.000

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DEPENDENT VARIABLE -- 524 CONGRUENCE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	-0.111	0.289	-0.010	-0.126	0.044	0.008
312 COMPUTE:SUB	0.183	-0.059	-0.186	-0.099	-0.055	-0.045
328 CMPREHEN:GROUP	0.228	0.011	0.208	0.121	0.130	0.105

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
306 PLACE VALUE	-0.052	0.134	-0.005	-0.059	0.020	0.004
312 COMPUTE:SUB	0.053	-0.017	-0.054	-0.029	-0.016	-0.013
328 CMPREHEN:GROUP	0.195	0.009	0.178	0.103	0.111	0.090
RSQ	0.065	0.049	0.079	0.014	0.017	0.010
R	0.254	0.222	0.281	0.119	0.131	0.101
F	2.123	1.441	2.626	0.227	1.911	1.111
P	0.103	0.237	0.055	0.877	0.127	0.343

(continued)

Table A7.6
(ninth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 525 SIMILARITY

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
310 RATIONALS	0.174	0.174	0.004	0.106	0.126	0.153
313 COMPUTE:MULT	0.150	0.196	-0.159	0.018	0.100	0.136
323 CURVED FIGURES	0.034	0.108	0.221	0.041	0.127	0.131

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
310 RATIONALS	0.107	0.107	0.003	0.066	0.077	0.094
313 COMPUTE:MULT	0.170	0.223	-0.181	0.020	0.114	0.154
323 CURVED FIGURES	0.018	0.059	0.119	0.022	0.069	0.071
RSQ	0.045	0.083	0.115	0.014	0.043	0.065
R	0.211	0.289	0.340	0.120	0.207	0.255
F	1.430	2.514	4.001	0.228	4.845	7.577
P	0.239	0.064	0.010	0.876	0.003	0.000

(continued)

Table A7.6
(tenth page)

B. WISC Scales

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DEPENDENT VARIABLE -- M305 WISC VOCABULARY SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.121	0.153	0.168	0.126	0.141	0.242
309 APPLICATION	0.080	0.147	0.083	0.135	0.106	0.188
310 RATIONALS	0.049	0.111	0.055	0.176	0.088	0.114
M324 IQ:KUHL-ANDER	0.194	0.260	0.054	0.184	0.175	0.178

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.098	0.123	0.136	0.102	0.113	0.195
309 APPLICATION	0.168	0.306	0.173	0.282	0.222	0.392
310 RATIONALS	0.125	0.285	0.140	0.450	0.225	0.291
M324 IQ:KUHL-ANDER	0.047	0.063	0.013	0.044	0.042	0.043
RSQ	0.141	0.250	0.080	0.211	0.151	0.259
R	0.375	0.500	0.284	0.459	0.388	0.509
F	3.434	6.903	1.989	2.406	13.721	26.953
P	0.012	0.000	0.103	0.067	0.000	0.000

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DEPENDENT VARIABLE -- M306 WISC SIMILARITIES SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M203 SET B:RAVEN	0.070	0.205	0.083	0.205	0.147	0.165
307 NUMBER CMPARSN	0.246	0.214	0.129	0.196	0.180	0.195
308 NUMBER LINE	0.113	0.395	0.087	0.256	0.155	0.176
313 COMPUTE:MULT	-0.069	0.215	0.199	0.184	0.169	0.192

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M203 SET B:RAVEN	0.132	0.388	0.156	0.387	0.277	0.313
307 NUMBER CMPARSN	0.519	0.452	0.272	0.413	0.380	0.412
308 NUMBER LINE	0.276	0.965	0.212	0.625	0.378	0.430
313 COMPUTE:MULT	-0.317	0.990	0.900	0.848	0.779	0.883
RSQ	0.122	0.300	0.089	0.345	0.165	0.253
R	0.350	0.548	0.298	0.587	0.406	0.503
F	2.999	8.696	2.194	4.738	15.170	26.015
P	0.023	0.000	0.076	0.004	0.000	0.000

(continued)

Table A7.6
(eleventh page)

B. WISC Scales (continued)

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DEPENDENT VARIABLE -- M307 WISC PICTURE COMPLETION SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.110	0.302	0.170	0.332	0.183	0.223
306 PLACE VALUE	0.231	0.165	0.024	-0.319	0.097	0.146
M324 IQ:KUHL-ANDER	0.226	0.020	0.163	0.252	0.154	0.140

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.073	0.204	0.112	0.219	0.125	0.151
306 PLACE VALUE	0.311	0.222	0.032	-0.429	0.130	0.196
M324 IQ:KUHL-ANDER	0.044	0.004	0.032	0.050	0.030	0.028
RSQ	0.178	0.138	0.085	0.171	0.110	0.165
R	0.421	0.371	0.291	0.414	0.332	0.407
F	6.191	4.416	2.781	2.551	12.727	20.413
P	0.001	0.006	0.046	0.070	0.000	0.000

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DEPENDENT VARIABLE -- M308 WISC BLOCK DESIGN SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.146	0.608	0.175	0.295	0.322	0.353
306 PLACE VALUE	0.194	0.178	0.095	-0.210	0.126	0.171
308 NUMBER LINE	0.142	0.246	-0.013	0.093	0.106	0.117
M324 IQ:KUHL-ANDER	0.057	-0.025	0.541	0.316	0.200	0.180

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	0.103	0.430	0.124	0.208	0.228	0.248
306 PLACE VALUE	0.280	0.257	0.138	-0.303	0.182	0.246
308 NUMBER LINE	0.318	0.540	-0.029	0.208	0.237	0.261
M324 IQ:KUHL-ANDER	0.012	-0.005	0.114	0.066	0.042	0.033
RSQ	0.180	0.458	0.489	0.291	0.313	0.395
R	0.425	0.677	0.699	0.539	0.559	0.629
F	4.513	17.120	21.063	3.695	34.372	49.297
P	0.002	0.000	0.000	0.013	0.000	0.000

(continued)

Table A7.6
(twelfth page)

B.· WISC Scales (continued)

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DEPENDENT VARIABLE -- M311 WISC TOTAL SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M2C4 TOTAL:RAVEN	C.146	C.374	0.210	0.412	0.260	C.313
3C6 PLACE VALUE	0.231	0.310	0.045	-0.235	C.154	0.234
3C8 NUMBER LINE	0.119	0.242	0.032	0.235	0.116	0.170
M324 IQ:KUHL-ANDER	0.2C1	0.125	0.314	0.247	0.223	0.194

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
M204 TOTAL:RAVEN	C.319	0.819	0.459	0.859	0.568	0.695
3C6 PLACE VALUE	1.029	1.331	0.202	-1.044	0.686	1.040
3C8 NUMBER LINE	C.816	1.668	0.219	1.620	0.799	1.171
M324 IQ:KUHL-ANDER	C.130	0.081	0.203	0.160	0.144	0.126
RSQ	C.351	0.449	0.328	0.472	0.357	0.489
R	C.592	0.670	0.573	0.686	0.598	0.699
F	11.C68	16.529	10.760	7.096	41.943	69.717
P	0.000	C.000	0.000	0.000	0.000	0.000

(continued)

Table A7.6
(thirteenth page)

C. SAT Scale

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DEPENDENT VARIABLE -- A305 SAT-2 TOTAL READING NUMBER RIGHT

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
A209 #RT:SAT TOTAL	0.893	0.625	0.678	0.693	0.702	0.745
M324 IQ:KUHL-ANDER	0.035	0.252	0.099	0.154	0.134	0.153

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
A209 #RT:SAT TOTAL	1.081	0.756	0.820	0.826	0.850	0.901
M324 IQ:KUHL-ANDER	0.049	0.359	0.127	0.219	0.191	0.218
RSQ	0.729	0.649	0.676	0.657	0.668	0.699
R	0.854	0.905	0.822	0.811	0.817	0.835
F	114.526	80.042	95.966	50.759	327.696	376.290
P	0.000	0.000	0.000	0.000	0.0	0.0

TABLE A7.7
CORRELATIONS WITHIN CELLS
OF END-OF-THIRD-GRADE SCALES AND END-OF-SECOND-GRADE SCALES
SELECTED SAMPLE

MATRIX FOR CELL A1

(EXCLUDING RATIONALS, SCALE 507)

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
501 VOCABULARY	1	1.00	0.54	0.65	0.58	0.18	0.57	0.49	0.49	0.45	0.35	0.20	-0.20	0.00	0.17	0.06	0.61
502 COMPREHENSION	2		1.00	0.54	0.45	0.28	0.55	0.31	0.46	0.42	0.34	0.17	-0.15	-0.11	0.13	0.15	0.55
503 NUMBER CMPARSN	3			1.00	0.51	0.17	0.52	0.46	0.58	0.44	0.48	0.20	-0.06	-0.03	0.23	-0.11	0.54
504 PLACE VALUE	4				1.00	0.18	0.42	0.28	0.42	0.40	0.41	0.16	-0.22	-0.02	-0.05	0.21	0.52
505 NUMBER LINE	5					1.00	0.21	0.08	0.19	0.41	0.17	-0.02	-0.12	-0.02	0.16	0.13	0.23
506 APPLICATION	6						1.00	0.30	0.45	0.51	0.29	0.11	-0.12	-0.01	0.14	-0.21	0.49
508 ORDR:PICSET:GP	7							1.00	0.48	0.40	0.40	0.28	-0.11	-0.12	0.16	-0.03	0.30
510 COMPUTE:ADD	8								1.00	0.60	0.51	0.11	-0.00	-0.13	0.18	0.03	0.45
511 COMPUTE:SUBT	9									1.00	0.44	0.05	-0.21	-0.14	0.26	0.05	0.43
512 COMPUTE:MULT	10										1.00	0.31	-0.17	-0.11	-0.11	0.04	0.55
521 IDFY POLYGS	11											1.00	-0.44	-0.03	-0.17	0.17	0.41
522 CRVD&OPEN FIGS	12												1.00	-0.11	-0.06	-0.10	-0.29
523 IDFY TRIANGS	13													1.00	0.09	-0.12	-0.12
524 CONGRUENCE	14														1.00	-0.27	-0.05
525 SIMILARITY	15															1.00	0.08
A305 #RT:SAT TOTAL	16																1.00

		17	18	19	20	21
501 VOCABULARY	1	0.34	0.17	0.18	0.28	0.34
502 COMPREHENSION	2	0.29	0.10	0.12	0.18	0.25
503 NUMBER CMPARSN	3	0.41	0.31	0.29	0.34	0.48
504 PLACE VALUE	4	0.25	0.12	0.06	0.32	0.27
505 NUMBER LINE	5	0.06	0.04	-0.04	0.15	0.08
506 APPLICATION	6	0.17	0.20	0.05	0.11	0.19
508 ORDR:PICSET:GP	7	0.18	0.22	0.21	0.22	0.30
510 COMPUTE:ADD	8	0.32	0.24	0.11	0.35	0.36
511 COMPUTE:SUBT	9	0.26	0.29	0.07	0.33	0.34
512 COMPUTE:MULT	10	0.36	0.34	0.27	0.41	0.49
521 IDFY POLYGS	11	0.09	0.22	0.14	0.15	0.21
522 CRVD&OPEN FIGS	12	-0.09	-0.03	-0.11	-0.17	-0.14
523 IDFY TRIANGS	13	-0.00	0.00	0.03	-0.08	-0.02
524 CONGRUENCE	14	0.04	0.05	-0.10	-0.15	-0.05
525 SIMILARITY	15	-0.02	0.13	-0.14	0.20	0.06
A305 #RT:SAT TOTAL	16	0.37	0.18	0.17	0.32	0.37
M305 VOCAB:WISC SC	17	1.00	0.37	0.35	0.39	0.76
M306 SIML:WISC SCA	18		1.00	0.19	0.30	0.69
M307 P.CM:WISC SCA	19			1.00	0.35	0.65
M308 BLKD:WISC SCA	20				1.00	0.71
M311 TOTL:WISC SCA	21					1.00

N = 81 FOR CELL A1

(CONTINUED)

TABLE A7.7
(SECOND PAGE)

MATRIX FOR CELL A1 (CONTINUED) (EXCLUDING RATIONALS, SCALE 507)

		22	23	24	25	26	27	28	29	30	31	32	33
501 VOCABULARY	1	0.53	0.58	0.23	0.66	0.27	0.40	0.53	0.56	0.42	0.49	0.31	0.61
502 COMPREHENSION	2	0.35	0.50	0.33	0.57	0.30	0.25	0.45	0.43	0.46	0.47	0.43	0.57
503 NUMBER CMPARSN	3	0.50	0.60	0.44	0.74	0.30	0.37	0.54	0.60	0.42	0.54	0.40	0.56
504 PLACE VALUE	4	0.39	0.56	0.18	0.61	0.25	0.38	0.40	0.45	0.29	0.47	0.37	0.50
505 NUMBER LINE	5	0.23	0.15	0.23	0.25	0.06	0.08	0.14	0.14	0.06	0.10	0.13	0.09
506 APPLICATION	6	0.30	0.52	0.33	0.61	0.19	0.19	0.44	0.46	0.34	0.52	0.34	0.46
508 ORDR:PICSET:GP	7	0.42	0.36	0.09	0.47	0.16	0.25	0.48	0.32	0.53	0.42	0.25	0.30
510 COMPUTE:ADD	8	0.40	0.56	0.34	0.58	0.33	0.29	0.56	0.49	0.46	0.61	0.45	0.51
511 COMPUTE:SUBT	9	0.38	0.38	0.23	0.52	0.25	0.33	0.40	0.36	0.32	0.45	0.30	0.31
512 COMPUTE:MULT	10	0.16	0.54	0.27	0.42	0.37	0.34	0.33	0.47	0.39	0.44	0.58	0.43
521 IDFY [illegible]GS	11	0.16	0.27	0.09	0.21	0.23	0.27	0.09	0.22	0.27	0.10	0.25	0.35
522 CRVDOPEN FIGS	12	-0.19	-0.22	-0.18	-0.21	-0.11	-0.36	-0.08	-0.10	-0.04	-0.10	-0.13	-0.17
523 IDFY TRIANGS	13	0.07	-0.17	0.03	-0.06	0.01	0.05	0.00	-0.11	-0.15	-0.12	-0.04	-0.04
524 CONGRUENCE	14	0.11	-0.02	0.25	0.21	0.17	0.08	0.19	-0.09	0.08	0.11	-0.10	-0.04
525 SIMILARITY	15	-0.04	0.14	-0.21	-0.08	0.08	0.01	0.01	0.10	-0.07	0.08	-0.05	0.06
A305 #RT:SAT TOTAL	16	0.33	0.64	0.30	0.50	0.26	0.49	0.42	0.58	0.50	0.47	0.49	0.83
M305 VOCAB:WISC SC	17	0.41	0.27	0.40	0.38	0.33	0.28	0.32	0.31	0.36	0.31	0.27	0.36
M306 SIML:WISC SCA	18	0.21	0.20	0.25	0.26	0.30	0.13	0.17	0.24	0.06	0.29	0.16	0.12
M307 P.CM:WISC SCA	19	0.10	0.24	0.33	0.26	-0.04	0.32	0.20	0.27	0.23	0.24	0.28	0.10
M308 BLKD:WISC SCA	20	0.24	0.40	0.19	0.21	0.11	0.37	0.19	0.36	0.10	0.26	0.17	0.29
M311 TOTL:WISC SCA	21	0.35	0.39	0.42	0.40	0.26	0.39	0.31	0.42	0.27	0.39	0.31	0.31
701 NO. COMP:ORDER	22	1.00	0.38	0.39	0.55	0.20	0.31	0.39	0.41	0.41	0.35	0.28	0.41
702 PLACE VALUE	23		1.00	0.28	0.64	0.29	0.38	0.47	0.65	0.39	0.57	0.45	0.59
703 NUMBER LINE	24			1.00	0.37	0.14	0.11	0.29	0.27	0.31	0.43	0.27	0.35
704 APPLICATION	25				1.00	0.38	0.40	0.63	0.65	0.55	0.64	0.45	0.54
705 RATIONALS	26					1.00	0.20	0.32	0.31	0.30	0.27	0.30	0.36
706 STRUCT OF SPAC	27						1.00	0.39	0.46	0.33	0.32	0.32	0.44
707 COMPUTE:ADD	28							1.00	0.60	0.65	0.77	0.25	0.57
708 COMPUTE:SUBT	29								1.00	0.57	0.69	0.46	0.63
709 COMPUTE:MULT	30									1.00	0.60	0.50	0.58
727 COMPUTATION	31										1.00	0.41	0.58
728 STRUCTURE	32											1.00	0.45
A405 #RT:SAT TOTAL	33												1.00

N = 81 FOR CELL A1

TABLE A7.7
(THIRD PAGE)

MATRIX FOR CELL A1

CORRELATIONS WITH RATIONALS, SCALE 507

		1	2	3	4	5	6	7	8	9	10	11	12	13
507 RATIONALS	1	1.00	0.16	0.32	0.17	0.43	0.34	0.17	0.23	0.46	0.21	0.38	0.31	0.33
701 NO. COMP:ORDER	2		1.00	0.30	0.53	0.45	0.17	0.27	0.36	0.43	0.39	0.38	0.22	0.38
702 PLACE VALUE	3			1.00	0.32	0.66	0.34	0.44	0.48	0.67	0.44	0.62	0.52	0.62
703 NUMBER LINE	4				1.00	0.40	0.18	0.06	0.40	0.31	0.35	0.47	0.27	0.37
704 APPLICATION	5					1.00	0.44	0.35	0.61	0.68	0.52	0.66	0.43	0.55
705 RATIONALS	6						1.00	0.20	0.33	0.36	0.29	0.28	0.34	0.37
706 STRUCT OF SPAC	7							1.00	0.40	0.47	0.31	0.36	0.27	0.46
707 COMPUTE:ADD	8								1.00	0.55	0.64	0.77	0.24	0.57
708 COMPUTE:SUBT	9									1.00	0.57	0.67	0.51	0.63
709 COMPUTE:MULT	10										1.00	0.60	0.45	0.57
727 COMPUTATION	11											1.00	0.42	0.60
728 STRUCTURE	12												1.00	0.48
A405 #RT:SAT TOTAL	13													1.00

N = 66 FOR CELL A1

(CONTINUED)

TABLE A7.7
(FOURTH PAGE)

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
501 VOCABULARY	1	1.00	0.52	0.54	0.62	0.35	0.46	0.23	0.50	0.31	0.41	0.39	-0.01	0.21	0.11	0.02	0.12
502 COMPREHENSION	2		1.00	0.40	0.45	0.27	0.39	0.18	0.46	0.43	0.36	0.36	-0.18	0.07	0.23	0.05	0.15
503 NUMBER CMPARSN	3			1.00	0.43	0.31	0.28	0.15	0.43	0.36	0.30	0.43	0.03	0.18	0.12	-0.00	0.14
504 PLACE VALUE	4				1.00	0.39	0.54	0.43	0.33	0.50	0.44	0.50	0.20	0.26	0.23	0.17	-0.01
505 NUMBER LINE	5					1.00	0.28	0.17	0.30	0.31	0.32	0.32	0.09	0.06	0.11	-0.07	0.10
506 APPLICATION	6						1.00	0.33	0.36	0.48	0.41	0.32	0.15	0.12	0.09	0.14	0.01
507 RATIONALS	7							1.00	0.14	0.23	0.27	0.31	-0.01	0.01	0.11	0.10	0.07
508 CMPR:PICSET:GP	8								1.00	0.37	0.39	0.23	0.01	0.07	-0.02	-0.02	0.11
510 COMPUTE:ADD	9									1.00	0.46	0.51	0.03	0.15	0.05	0.04	0.17
511 COMPUTE:SUBT	10										1.00	0.32	0.02	0.13	-0.04	-0.05	0.12
512 COMPUTE:MULT	11											1.00	0.01	0.14	0.19	0.10	0.08
521 IDFY POLYGS	12												1.00	-0.01	0.10	0.26	-0.12
522 CRVDCOPEN FIGS	13													1.00	0.09	0.10	0.11
523 IDFY TRIANGS	14														1.00	0.30	-0.14
524 CONGRUENCE	15															1.00	-0.28
525 SIMILARITY	16																1.00

		17	18	19	20	21	22
501 VOCABULARY	1	0.48	0.40	0.41	0.18	0.25	0.43
502 COMPREHENSION	2	0.40	0.35	0.47	0.07	0.35	0.43
503 NUMBER CMPARSN	3	0.46	0.18	0.34	0.21	0.31	0.36
504 PLACE VALUE	4	0.54	0.52	0.58	0.28	0.34	0.59
505 NUMBER LINE	5	0.28	0.17	0.18	-0.01	0.15	0.17
506 APPLICATION	6	0.33	0.38	0.32	-0.02	0.17	0.29
507 RATIONALS	7	0.16	0.40	0.22	0.33	0.30	0.42
508 CMPR:PICSET:GP	8	0.32	0.17	0.15	0.02	0.20	0.18
510 COMPUTE:ADD	9	0.29	0.16	0.20	0.21	0.31	0.30
511 COMPUTE:SUBT	10	0.40	0.20	0.30	0.06	0.16	0.25
512 COMPUTE:MULT	11	0.45	0.22	0.22	0.17	0.42	0.36
521 IDFY POLYGS	12	0.02	0.11	0.07	0.10	-0.16	0.03
522 CRVDCOPEN FIGS	13	0.20	0.00	0.38	0.03	0.23	0.23
523 IDFY TRIANGS	14	0.11	0.13	0.16	0.14	-0.00	0.14
524 CONGRUENCE	15	-0.05	0.16	0.04	0.13	0.17	0.17
525 SIMILARITY	16	0.12	0.10	0.03	-0.05	0.20	0.10
A305 ERT:SAT TOTAL	17	1.00	0.29	0.38	-0.04	0.32	0.34
N305 VOCAB:WISC SC	18		1.00	0.58	0.37	0.26	0.74
N306 SIML:WISC SCA	19			1.00	0.30	0.43	0.80
N307 PLCH:WISC SCA	20				1.00	0.35	0.67
N308 BLKD:WISC SCA	21					1.00	0.71
N311 TOTL:WISC SCA	22						1.00

N = 82 FOR CELL B1

(CONTINUED)

TABLE A7.7
(FIFTH PAGE)

MATRIX FOR CELL B1 (CONTINUED)

		23	24	25	26	27	28	29	30	31	32	33	34
501 VOCABULARY	1	0.28	0.52	0.42	0.46	0.44	0.41	0.37	0.45	0.49	0.46	0.28	0.54
502 COMPREHENSION	2	0.38	0.39	0.33	0.38	0.42	0.41	0.31	0.34	0.38	0.34	0.35	0.45
503 NUMBER CMPARSN	3	0.43	0.31	0.35	0.28	0.32	0.21	0.41	0.32	0.37	0.42	0.50	0.49
504 PLACE VALUE	4	0.43	0.55	0.51	0.67	0.51	0.47	0.43	0.60	0.57	0.59	0.45	0.60
505 NUMBER LINE	5	0.26	0.25	0.31	0.22	0.42	0.12	0.15	0.25	0.24	0.30	0.42	0.34
506 APPLICATION	6	0.28	0.40	0.30	0.46	0.43	0.24	0.43	0.51	0.27	0.52	0.35	0.37
507 RATIONALS	7	0.17	0.26	0.25	0.19	0.53	0.18	0.11	0.41	0.21	0.37	0.30	0.24
508 ORDR:PICSET:GP	8	0.17	0.40	0.27	0.28	0.31	0.16	0.35	0.28	0.23	0.35	0.24	0.32
510 COMPUTE:ADD	9	0.41	0.38	0.33	0.48	0.40	0.31	0.55	0.46	0.37	0.47	0.30	0.41
511 COMPUTE:SUBT	10	0.18	0.33	0.35	0.44	0.29	0.16	0.38	0.48	0.38	0.43	0.32	0.44
512 COMPUTE:MULT	11	0.29	0.37	0.28	0.36	0.32	0.30	0.33	0.35	0.51	0.42	0.45	0.50
521 IDFY POLYGS	12	0.13	-0.08	-0.02	0.13	-0.02	0.01	0.13	0.19	-0.01	0.13	0.14	0.00
522 CRVD/OPEN FIGS	13	0.14	0.26	0.21	0.18	0.15	0.07	0.12	-0.03	0.03	0.04	0.26	0.24
523 IDFY TRIANGS	14	-0.01	0.14	-0.00	-0.09	0.21	0.14	-0.08	-0.07	0.07	0.01	0.16	0.09
524 CONGRUENCE	15	-0.01	0.15	0.17	0.18	0.14	0.17	-0.10	0.05	0.08	0.05	0.11	-0.00
525 SIMILARITY	16	0.17	0.00	0.16	0.10	0.18	0.06	0.04	0.08	0.11	0.07	0.13	0.15
A305 ERT:SAT TOTAL	17	0.30	0.37	0.42	0.43	0.35	0.39	0.33	0.42	0.37	0.47	0.41	0.88
M305 VOCAB:MISC SC	18	0.08	0.35	0.29	0.35	0.46	0.28	0.21	0.46	0.35	0.35	0.21	0.39
M306 SIML:MISC SCA	19	0.25	0.41	0.34	0.43	0.38	0.22	0.24	0.32	0.35	0.35	0.39	0.45
M307 P.CM:MISC SCA	20	0.05	0.17	0.32	0.08	0.26	0.01	0.17	0.25	0.19	0.26	0.12	0.11
M308 BLKD:MISC SCA	21	0.17	0.28	0.34	0.39	0.32	0.29	0.06	0.17	0.36	0.34	0.29	0.46
M311 TOTL:MISC SCA	22	0.19	0.42	0.44	0.43	0.48	0.28	0.23	0.41	0.43	0.45	0.35	0.49
701 NO. COMP:ORDER	23	1.00	0.21	0.33	0.30	0.34	0.27	0.29	0.34	0.17	0.22	0.31	0.28
702 PLACE VALUE	24		1.00	0.30	0.40	0.42	0.37	0.40	0.46	0.63	0.53	0.41	0.51
703 NUMBER LINE	25			1.00	0.47	0.45	0.23	0.20	0.34	0.26	0.36	0.40	0.46
704 APPLICATION	26				1.00	0.36	0.48	0.28	0.51	0.46	0.60	0.25	0.48
705 RATIONALS	27					1.00	0.34	0.27	0.44	0.42	0.47	0.36	0.48
706 STRUCT OF SPAC	28						1.00	0.19	0.22	0.35	0.21	0.09	0.43
707 COMPUTE:ADD	29							1.00	0.63	0.30	0.51	0.29	0.41
708 COMPUTE:SUBT	30								1.00	0.47	0.62	0.38	0.48
709 COMPUTE:MULT	31									1.00	0.56	0.38	0.52
727 COMPUTATION	32										1.00	0.40	0.59
728 STRUCTURE	33											1.00	0.42
A405 ERT:SAT TOTAL	34												1.00

N = 82 FOR CELL B1

(CONTINUED)

TABLE A7.7
(SIXTH PAGE)

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
501 VOCABULARY	1	1.00	0.51	0.62	0.53	0.26	0.57	0.36	0.63	0.62	0.58	0.41	-0.12	0.03	0.21	0.03	-0.24
502 COMPREHENSION	2		1.00	0.42	0.48	0.11	0.47	0.32	0.46	0.50	0.50	0.46	-0.05	-0.02	0.27	0.04	-0.27
503 NUMBER CMPARSN	3			1.00	0.54	0.32	0.56	0.36	0.45	0.57	0.38	0.31	-0.14	0.07	0.09	-0.08	-0.24
504 PLACE VALUE	4				1.00	0.33	0.56	0.47	0.43	0.50	0.43	0.58	0.03	-0.01	0.17	-0.01	-0.31
505 NUMBER LINE	5					1.00	0.25	0.34	0.30	0.21	0.16	0.28	-0.12	-0.01	-0.01	-0.13	-0.03
506 APPLICATION	6						1.00	0.45	0.52	0.63	0.60	0.57	0.09	0.05	0.20	-0.09	-0.23
507 RATIONALS	7							1.00	0.35	0.38	0.36	0.41	-0.08	-0.08	0.09	-0.11	-0.18
508 ORDR:PICSET:GP	8								1.00	0.52	0.52	0.46	-0.04	0.03	0.08	-0.06	-0.17
510 COMPUTE:ADD	9									1.00	0.72	0.53	-0.14	0.16	0.20	-0.17	-0.15
511 COMPUTE:SUBT	10										1.00	0.61	-0.03	0.04	0.17	-0.19	-0.06
512 COMPUTE:MULT	11											1.00	-0.06	0.04	0.19	-0.07	-0.11
521 IDFY POLYGS	12												1.00	-0.35	0.09	0.12	-0.08
522 CRVD&OPEN FIGS	13													1.00	-0.16	-0.01	0.09
523 IDFY TRIANGS	14														1.00	0.32	-0.37
524 CONGRUENCE	15															1.00	-0.38
525 SIMILARITY	16																1.00

		17	18	19	20	21	22
501 VOCABULARY	1	0.57	0.22	0.47	0.14	0.47	0.50
502 COMPREHENSION	2	0.53	0.24	0.49	0.24	0.41	0.53
503 NUMBER CMPARSN	3	0.45	0.25	0.35	-0.02	0.32	0.35
504 PLACE VALUE	4	0.55	0.24	0.39	0.21	0.49	0.50
505 NUMBER LINE	5	0.12	0.13	0.12	0.04	0.33	0.24
506 APPLICATION	6	0.53	0.14	0.39	0.11	0.43	0.41
507 RATIONALS	7	0.26	-0.01	0.12	0.07	0.34	0.20
508 ORDR:PICSET:GP	8	0.49	0.03	0.41	0.06	0.44	0.36
510 COMPUTE:ADD	9	0.60	0.13	0.39	0.20	0.44	0.44
511 COMPUTE:SUBT	10	0.53	0.07	0.44	0.15	0.35	0.39
512 COMPUTE:MULT	11	0.46	0.06	0.38	0.18	0.46	0.41
521 IDFY POLYGS	12	0.08	0.07	0.15	-0.15	-0.01	0.03
522 CRVD&OPEN FIGS	13	-0.03	0.05	0.07	0.07	0.09	0.11
523 IDFY TRIANGS	14	0.29	0.11	0.23	0.19	0.15	0.26
524 CONGRUENCE	15	-0.12	0.10	0.11	0.11	0.08	0.15
525 SIMILARITY	16	-0.17	-0.04	-0.22	-0.18	-0.23	-0.26
A305 ART:SAT TOTAL	17	1.00	0.28	0.53	0.11	0.37	0.50
M305 VOCAB:WISC SC	18		1.00	0.46	0.15	0.12	0.66
M306 SIML:WISC SCA	19			1.00	0.13	0.30	0.73
M307 P.CM:WISC SCA	20				1.00	0.31	0.58
M308 BLKD:WISC SCA	21					1.00	0.65
M311 TOTL:WISC SCA	22						1.00

N = 93 FOR CELL C1

(CONTINUED)

TABLE A7.7
(SEVENTH PAGE)

MATRIX FOR CELL C1 (CONTINUED)

		23	24	25	26	27	28	29	30	31	32	33	34
501 VOCABULARY	1	0.51	0.50	0.14	0.42	0.29	0.35	0.49	0.52	0.54	0.53	0.44	0.61
502 COMPREHENSION	2	0.33	0.39	0.14	0.39	0.18	0.22	0.39	0.47	0.45	0.49	0.37	0.51
503 NUMBER CMPARSN	3	0.42	0.42	0.08	0.50	0.32	0.46	0.43	0.54	0.49	0.48	0.44	0.52
504 PLACE VALUE	4	0.40	0.52	0.10	0.39	0.35	0.29	0.39	0.59	0.50	0.53	0.60	0.56
505 NUMBER LINE	5	0.16	0.20	0.08	0.23	0.19	0.25	0.29	0.27	0.24	0.31	0.21	0.29
506 APPLICATION	6	0.55	0.58	0.11	0.50	0.19	0.26	0.45	0.63	0.64	0.60	0.48	0.59
507 RATIONALS	7	0.32	0.38	0.20	0.35	0.23	0.20	0.36	0.45	0.39	0.52	0.42	0.38
508 ORDR:PICSET:GP	8	0.51	0.41	0.13	0.45	0.38	0.36	0.46	0.52	0.59	0.52	0.40	0.58
510 COMPUTE:ADD	9	0.45	0.60	0.12	0.46	0.33	0.30	0.57	0.61	0.65	0.60	0.57	0.64
511 COMPUTE:SUBT	10	0.33	0.53	0.17	0.41	0.23	0.25	0.44	0.59	0.63	0.52	0.38	0.55
512 COMPUTE:MULT	11	0.34	0.59	0.15	0.43	0.35	0.21	0.46	0.63	0.55	0.55	0.49	0.50
521 IDFY POLYGS	12	-0.05	0.07	0.02	0.10	-0.02	0.03	-0.01	-0.04	0.05	0.04	-0.02	0.02
522 CRVD&OPEN FIGS	13	-0.07	0.06	-0.02	-0.08	0.00	0.12	-0.08	-0.03	0.08	-0.02	0.08	-0.01
523 IDFY TRIANGS	14	0.04	0.21	-0.03	0.21	0.07	0.09	0.18	0.17	0.20	0.35	0.29	0.27
524 CONGRUENCE	15	-0.11	0.06	-0.03	0.05	-0.01	0.00	-0.00	-0.09	-0.10	0.03	-0.02	-0.07
525 SIMILARITY	16	-0.10	-0.13	-0.10	-0.21	-0.06	-0.07	-0.13	-0.22	-0.17	-0.31	-0.18	-0.23
A305 #RT:SAT TOTAL	17	0.43	0.54	0.32	0.43	0.24	0.37	0.39	0.49	0.67	0.56	0.55	0.85
M305 VOCAB:MISC SC	18	0.17	0.17	-0.10	0.13	0.00	0.14	0.06	0.05	0.08	0.10	0.02	0.23
M306 SIML:MISC SCA	19	0.30	0.51	0.17	0.31	0.14	0.32	0.32	0.31	0.41	0.35	0.35	0.55
M307 P.CH:MISC SCA	20	0.19	0.10	0.26	0.08	0.22	-0.00	0.09	0.21	0.20	0.18	0.23	0.18
M308 BLKD:MISC SCA	21	0.26	0.43	0.30	0.26	0.43	0.19	0.41	0.45	0.51	0.57	0.54	0.49
M311 TOTL:MISC SCA	22	0.35	0.47	0.23	0.30	0.30	0.25	0.34	0.39	0.46	0.46	0.43	0.56
701 NO. COMP:ORDER	23	1.00	0.46	0.20	0.39	0.19	0.31	0.37	0.54	0.47	0.44	0.40	0.51
702 PLACE VALUE	24		1.00	0.28	0.60	0.27	0.32	0.46	0.66	0.59	0.59	0.56	0.53
703 NUMBER LINE	25			1.00	0.13	0.23	0.18	0.15	0.19	0.26	0.33	0.33	0.32
704 APPLICATION	26				1.00	0.32	0.40	0.52	0.57	0.60	0.60	0.44	0.49
705 RATIONALS	27					1.00	0.28	0.23	0.37	0.37	0.33	0.32	0.26
706 STRUCT OF SPAC	28						1.00	0.36	0.36	0.39	0.35	0.35	0.45
707 COMPUTE:ADD	29							1.00	0.60	0.67	0.65	0.50	0.54
708 COMPUTE:SUBT	30								1.00	0.69	0.68	0.55	0.59
709 COMPUTE:MULT	31									1.00	0.70	0.61	0.72
727 COMPUTATION	32										1.00	0.72	0.65
728 STRUCTURE	33											1.00	0.65
A405 #RT:SAT TOTAL	34												1.00

N = 93 FOR CELL C1

(CONTINUED)

TABLE A7.7
(EIGHTH PAGE)

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
501 VOCABULARY	1	1.00	0.47	0.56	0.55	0.07	0.54	0.41	0.39	0.47	0.54	0.54	-0.16	-0.10	0.29	-0.18	0.21
502 COMPREHENSION	2		1.00	0.46	0.47	0.12	0.45	0.30	0.40	0.41	0.48	0.47	0.01	-0.09	0.13	-0.15	0.04
503 NUMBER CMPARSN	3			1.00	0.44	0.07	0.45	0.30	0.35	0.66	0.42	0.52	-0.13	-0.02	0.13	-0.05	-0.04
504 PLACE VALUE	4				1.00	0.26	0.59	0.08	0.28	0.57	0.55	0.39	-0.12	0.09	0.03	-0.23	0.09
505 NUMBER LINE	5					1.00	0.16	-0.08	-0.02	0.30	0.20	-0.12	0.06	-0.00	-0.04	0.08	-0.17
506 APPLICATION	6						1.00	0.24	0.36	0.54	0.55	0.59	-0.00	-0.06	0.16	0.03	0.00
507 RATIONALS	7							1.00	0.26	0.26	0.21	0.47	-0.03	0.10	0.14	-0.18	0.15
508 ORDR:PICSET:GP	8								1.00	0.35	0.49	0.48	0.14	0.01	0.10	0.01	0.37
510 COMPUTE:ADD	9									1.00	0.66	0.49	-0.26	-0.03	-0.04	0.04	0.04
511 COMPUTE:SUBT	10										1.00	0.52	-0.07	-0.08	0.02	-0.10	0.24
512 COMPUTE:MULT	11											1.00	0.04	0.13	0.15	-0.09	0.21
521 IDFY POLYGS	12												1.00	0.06	0.23	0.05	0.06
522 CRVD&OPEN FIGS	13													1.00	-0.13	0.03	0.16
523 IDFY TRIANGS	14														1.00	-0.08	-0.22
524 CONGRUENCE	15															1.00	-0.37
525 SIMILARITY	16																1.00

		17	18	19	20	21	22
501 VOCABULARY	1	0.65	0.47	0.57	0.03	0.35	0.53
502 COMPREHENSION	2	0.40	0.32	0.32	0.27	0.33	0.44
503 NUMBER CMPARSN	3	0.37	0.33	0.44	0.23	0.26	0.46
504 PLACE VALUE	4	0.45	0.38	0.44	0.21	0.23	0.46
505 NUMBER LINE	5	0.09	-0.05	0.14	0.03	0.04	0.05
506 APPLICATION	6	0.45	0.38	0.50	0.08	0.38	0.49
507 RATIONALS	7	0.33	0.30	0.26	0.05	0.25	0.32
508 ORDR:PICSET:GP	8	0.24	0.23	0.24	0.11	0.22	0.29
510 COMPUTE:ADD	9	0.43	0.24	0.39	0.27	0.28	0.42
511 COMPUTE:SUBT	10	0.49	0.17	0.50	0.20	0.19	0.38
512 COMPUTE:MULT	11	0.49	0.32	0.42	-0.05	0.31	0.37
521 IDFY POLYGS	12	-0.25	-0.13	-0.01	-0.03	0.04	-0.06
522 CRVD&OPEN FIGS	13	-0.10	-0.16	-0.13	-0.22	-0.07	-0.21
523 IDFY TRIANGS	14	0.08	0.32	0.44	-0.18	-0.04	0.22
524 CONGRUENCE	15	0.04	-0.04	0.06	-0.02	0.05	0.01
525 SIMILARITY	16	-0.04	0.02	-0.01	0.11	0.14	0.09
A305 ART:SAT TOTAL	17	1.00	0.45	0.49	0.00	0.07	0.39
N305 VOCAB:NISC SC	18		1.00	0.53	0.30	0.23	0.79
N306 SIML:NISC SCA	19			1.00	0.16	0.20	0.70
N307 P.CMP:NISC SCA	20				1.00	0.37	0.63
N308 BLKD:NISC SCA	21					1.00	0.62
N311 TOTL:NISC SCA	22						1.00

N = 49 FOR CELL D1

(CONTINUED)

TABLE A7.7
(NINTH PAGE)

MATRIX FOR CELL D1 (CONTINUED)

		23	24	25	26	27	28	29	30	31	32	33	34
501 VOCABULARY	1	0.36	0.72	0.32	0.56	0.45	0.15	0.53	0.56	0.52	0.65	0.55	0.68
502 COMPREHENSION	2	0.24	0.67	0.17	0.52	0.51	0.27	0.50	0.59	0.45	0.46	0.36	0.47
503 NUMBER CMPARSN	3	0.34	0.56	0.27	0.46	0.45	0.10	0.47	0.48	0.43	0.66	0.35	0.41
504 PLACE VALUE	4	0.28	0.56	0.19	0.61	0.38	0.30	0.53	0.57	0.22	0.48	0.36	0.54
505 NUMBER LINE	5	-0.21	0.11	0.41	0.11	-0.06	0.08	0.17	0.12	-0.14	0.14	0.17	0.01
506 APPLICATION	6	0.15	0.60	0.26	0.55	0.53	0.28	0.52	0.48	0.34	0.56	0.49	0.58
507 RATIONALS	7	0.24	0.35	0.11	0.24	0.44	0.27	0.18	0.18	0.24	0.32	0.37	0.36
508 ERROR:PICSET:GP	8	0.31	0.34	0.24	0.29	0.26	0.09	0.22	0.32	0.45	0.41	0.35	0.33
510 COMPUTE:ADD	9	0.22	0.50	0.23	0.46	0.38	0.22	0.45	0.62	0.38	0.58	0.41	0.39
511 COMPUTE:SUBT	10	0.18	0.52	0.25	0.47	0.32	0.16	0.53	0.69	0.56	0.69	0.59	0.45
512 COMPUTE:MULT	11	0.46	0.50	0.23	0.49	0.63	0.20	0.27	0.46	0.35	0.49	0.53	0.52
521 IDFY POLYGS	12	0.05	-0.16	0.25	-0.03	-0.13	-0.09	-0.25	-0.33	-0.02	-0.15	0.20	-0.11
522 CRVD&OPEN FIGS	13	0.06	-0.10	-0.05	0.13	0.10	0.04	-0.04	0.02	-0.22	0.11	0.04	-0.10
523 IDFY TRIANGS	14	0.26	0.25	0.17	0.21	0.17	0.07	-0.11	-0.09	0.21	0.11	0.29	0.24
524 CONGRUENCE	15	0.08	-0.21	-0.00	-0.01	-0.09	0.20	-0.04	-0.23	-0.06	-0.08	0.05	-0.09
525 SIMILARITY	16	0.12	0.01	0.10	0.14	0.12	-0.12	-0.01	0.21	-0.02	0.14	0.14	0.16
A305 ART:SAT TOTAL	17	0.06	0.49	0.32	0.53	0.49	0.45	0.39	0.53	0.30	0.44	0.29	0.79
W305 VOCAB:WISC SC	18	0.34	0.45	0.22	0.42	0.34	0.36	0.19	0.28	0.16	0.28	0.30	0.56
W306 SIML:WISC SCA	19	0.28	0.52	0.25	0.46	0.44	0.10	0.17	0.35	0.28	0.44	0.45	0.57
W307 P.CH:WISC SCA	20	0.06	0.18	0.10	0.10	-0.01	0.02	0.17	0.21	0.10	0.25	0.07	0.14
W308 BLKD:WISC SCA	21	0.28	0.35	0.24	0.47	0.25	0.09	0.33	0.35	0.13	0.33	0.43	0.18
W311 TOTL:WISC SCA	22	0.36	0.55	0.30	0.54	0.38	0.23	0.31	0.43	0.24	0.47	0.46	0.55
701 NO. COMP:ORDER	23	1.00	0.23	0.22	0.33	0.33	0.10	0.15	0.13	0.18	0.33	0.38	0.19
702 PLACE VALUE	24		1.00	0.26	0.61	0.62	0.22	0.54	0.49	0.48	0.59	0.52	0.58
703 NUMBER LINE	25			1.00	0.32	0.15	0.07	0.13	0.10	-0.05	0.38	0.30	0.30
704 APPLICATION	26				1.00	0.66	0.41	0.63	0.54	0.30	0.58	0.54	0.60
705 RATIONALS	27					1.00	0.46	0.35	0.39	0.25	0.48	0.48	0.56
706 STRUCT OF SPAC	28						1.00	0.30	0.25	0.09	0.11	0.34	0.38
707 COMPUTE:ADD	29							1.00	0.63	0.54	0.65	0.34	0.33
708 COMPUTE:SUBT	30								1.00	0.48	0.65	0.41	0.42
709 COMPUTE:MULT	31									1.00	0.57	0.52	0.30
727 COMPUTATION	32										1.00	0.57	0.47
728 STRUCTURE	33											1.00	0.42
A405 ART:SAT TOTAL	34												1.00
SAMPLE SIZE =			49										

N = 49 FOR CELL D1

Table A7.8
Regression Weights by Cell
for End-of-Third-Grade Scales
Using End-of-Second-Grade Scales as Covariates
Longitudinal Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 701 NUMBER COMPARISON: ORDER

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
502 COMPREHENSION	0.110	0.119	0.059	0.040	0.091	0.093
503 NUMBER CMPARSN	0.289	0.390	0.125	0.145	0.231	0.222
504 PLACE VALUE	0.218	0.254	0.177	0.309	0.225	0.224
508 ORDR:PICSET:GP	0.201	-0.033	0.334	0.201	0.182	0.186

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
502 COMPREHENSION	0.101	0.109	0.053	0.036	0.083	0.085
503 NUMBER CMPARSN	0.258	0.350	0.112	0.130	0.207	0.199
504 PLACE VALUE	0.172	0.200	0.139	0.244	0.177	0.177
508 ORDR:PICSET:GP	0.287	-0.047	0.477	0.287	0.260	0.265
RSQ	0.363	0.303	0.278	0.211	0.280	0.344
R	0.603	0.550	0.528	0.459	0.529	0.587
F	13.274	9.333	9.452	3.539	33.547	45.314
P	0.000	0.000	0.000	0.012	0.000	0.000

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DEPENDENT VARIABLE -- 702 PLACE VALUE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.092	0.330	0.030	0.439	0.174	0.190
504 PLACE VALUE	0.193	0.233	0.152	0.210	0.198	0.224
510 COMPUTE:ADD	0.185	0.187	0.357	0.182	0.229	0.233
A305 #RT:SAT TOTAL	0.271	0.056	0.154	0.046	0.149	0.165
M308 BLKD:WISC SCA	0.163	0.054	0.104	0.083	0.091	0.114

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.063	0.230	0.021	0.297	0.119	0.130
504 PLACE VALUE	0.201	0.242	0.159	0.218	0.206	0.233
510 COMPUTE:ADD	0.198	0.201	0.384	0.196	0.246	0.250
A305 #RT:SAT TOTAL	0.032	0.007	0.018	0.005	0.017	0.019
M308 BLKD:WISC SCA	0.124	0.041	0.080	0.063	0.069	0.087
RSQ	0.519	0.382	0.438	0.567	0.443	0.560
R	0.720	0.618	0.662	0.753	0.665	0.748
F	18.705	10.017	14.518	12.308	51.783	82.905
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.8
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 703 NUMBER LINE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
505 NUMBER LINE	0.142	0.266	0.048	0.365	0.180	0.213
A305 #RT:SAT TOTAL	0.220	0.278	0.303	0.361	0.281	0.296
M308 BLKD:WISC SCA	0.121	0.230	0.144	0.285	0.175	0.185

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
505 NUMBER LINE	0.137	0.257	0.046	0.353	0.174	0.206
A305 #RT:SAT TOTAL	0.015	0.019	0.020	0.024	0.019	0.020
M308 BLKD:WISC SCA	0.053	0.101	0.063	0.126	0.077	0.081
RSQ	0.134	0.246	0.175	0.332	0.197	0.277
R	0.366	0.496	0.419	0.576	0.444	0.526
F	4.585	9.121	6.803	8.438	27.158	42.351
P	0.005	0.000	0.000	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 704 APPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
502 COMPREHENSION	0.060	0.132	0.133	0.221	0.120	0.117
503 NUMBER CMPARSN	0.361	0.061	0.265	0.186	0.245	0.261
504 PLACE VALUE	0.281	0.563	0.011	0.350	0.261	0.267
506 APPLICATION	0.238	0.111	0.258	0.213	0.224	0.218

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
502 COMPREHENSION	0.068	0.149	0.150	0.250	0.136	0.133
503 NUMBER CMPARSN	0.400	0.067	0.294	0.206	0.272	0.289
504 PLACE VALUE	0.274	0.549	0.011	0.341	0.255	0.260
506 APPLICATION	0.275	0.128	0.298	0.246	0.258	0.252
RSQ	0.570	0.456	0.365	0.493	0.435	0.514
R	0.755	0.675	0.604	0.702	0.660	0.717
F	30.846	18.034	14.102	12.863	66.407	91.329
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.8
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 705 RATIONALS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
507 RATIONALS	0.190	0.393	0.042	0.125	0.214	0.211
510 COMPUTE:ADD	0.112	0.395	0.255	0.124	0.200	0.204
512 COMPUTE:MLLT	0.210	0.024	0.187	0.463	0.208	0.235
M305 VOCAB:WISC SC	0.197	0.227	-0.043	0.130	0.129	0.159

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
507 RATIONALS	0.219	0.453	0.049	0.144	0.246	0.243
510 COMPUTE:ADD	0.101	0.357	0.230	0.116	0.180	0.184
512 COMPUTE:MLLT	0.153	0.018	0.137	0.338	0.152	0.172
M305 VOCAB:WISC SC	0.106	0.122	-0.023	0.070	0.069	0.085
RSQ	0.271	0.408	0.183	0.434	0.275	0.380
R	0.520	0.639	0.428	0.659	0.524	0.616
F	6.313	14.283	5.426	9.600	29.610	47.868
P	0.000	0.000	0.001	0.000	0.000	0.000

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DEPENDENT VARIABLE -- 706 STRUCTURE OF SPACE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
503 NUMBER CMPARSN	0.068	-0.035	0.355	-0.132	0.115	0.139
504 PLACE VALUE	0.121	0.418	0.004	0.379	0.196	0.204
A305 #RT:SAT TOTAL	0.348	0.249	0.248	0.368	0.286	0.291

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
503 NUMBER CMPARSN	0.057	-0.029	0.298	-0.111	0.097	0.117
504 PLACE VALUE	0.090	0.311	0.003	0.282	0.146	0.152
A305 #RT:SAT TOTAL	0.029	0.021	0.021	0.031	0.024	0.024
RSQ	0.270	0.272	0.263	0.223	0.228	0.303
R	0.520	0.521	0.513	0.472	0.478	0.550
F	10.991	10.694	11.425	4.972	33.046	48.488
P	0.000	0.000	0.000	0.004	0.000	0.000

(continued)

Table A7.8
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 707 COMPUTATION: ADDITION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.249	0.113	0.104	0.432	0.206	0.234
508 ORDR:PICSET:OP	0.227	0.089	0.211	0.034	0.153	0.155
510 COMPUTE:ADD	0.344	0.302	0.407	0.180	0.364	0.334
A305 #RT:SAT TOTAL	0.124	0.100	0.013	-0.013	0.069	0.094

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.184	0.083	0.077	0.319	0.152	0.173
508 ORDR:PICSET:OP	0.456	0.178	0.424	0.069	0.307	0.312
510 COMPUTE:ADD	0.399	0.381	0.471	0.208	0.422	0.387
A305 #RT:SAT TOTAL	0.016	0.013	0.002	-0.002	0.009	0.012
RSQ	0.468	0.374	0.380	0.305	0.384	0.462
R	0.684	0.611	0.617	0.553	0.619	0.680
F	19.318	12.524	14.413	5.383	51.343	70.845
P	0.000	0.000	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 708 COMPUTATION: SUBTRACTION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.213	0.096	0.055	0.181	0.126	0.158
504 PLACE VALUE	0.078	0.316	0.240	0.214	0.209	0.219
506 APPLICATION	0.069	0.155	0.257	0.097	0.160	0.158
510 COMPUTE:ADD	0.210	0.259	0.234	0.263	0.228	0.177
A305 #RT:SAT TOTAL	0.335	0.093	0.010	0.132	0.150	0.176

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.153	0.069	0.039	0.133	0.091	0.114
504 PLACE VALUE	0.085	0.343	0.261	0.232	0.227	0.237
506 APPLICATION	0.089	0.199	0.331	0.126	0.206	0.204
510 COMPUTE:ADD	0.237	0.292	0.254	0.304	0.257	0.200
A305 #RT:SAT TOTAL	0.041	0.011	0.001	0.016	0.018	0.021
RSQ	0.486	0.403	0.514	0.499	0.457	0.536
R	0.697	0.635	0.717	0.706	0.676	0.732
F	16.445	11.190	19.677	9.561	55.389	75.987
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.8
(fifth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 709 COMPUTATION: MULTIPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
508 ORDR:PICSET:GP	0.330	0.045	0.233	0.232	0.219	0.226
510 COMPUTE:ADD	0.160	0.118	0.248	0.194	0.234	0.258
512 COMPUTE:MULT	0.126	0.251	0.243	0.064	0.159	0.190
A305 #RT:SAT TOTAL	0.301	0.113	0.395	0.113	0.241	0.246

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
508 ORDR:PICSET:GP	0.692	0.094	0.489	0.487	0.459	0.475
510 COMPUTE:ADD	0.193	0.144	0.301	0.235	0.284	0.313
512 COMPUTE:MULT	0.129	0.257	0.249	0.065	0.163	0.194
A305 #RT:SAT TOTAL	0.039	0.015	0.052	0.015	0.032	0.032
RSQ	0.426	0.316	0.597	0.319	0.427	0.547
R	0.653	0.562	0.773	0.557	0.654	0.739
F	16.348	9.687	34.798	5.511	61.567	99.510
P	0.000	0.000	0.000	0.001	0.000	0.000

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DEPENDENT VARIABLE -- 727 COMPUTATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
503 NUMBER CMPARSN	0.228	0.279	0.138	0.463	0.230	0.248
506 APPLICATION	0.222	0.310	0.277	0.147	0.253	0.252
511 COMPUTE:SUBT	0.176	0.177	0.142	0.498	0.206	0.224
A305 #RT:SAT TOTAL	0.141	0.153	0.236	0.040	0.170	0.183

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
503 NUMBER CMPARSN	0.424	0.520	0.257	0.861	0.429	0.462
506 APPLICATION	0.425	0.593	0.530	0.282	0.484	0.483
511 COMPUTE:SUBT	0.247	0.289	0.231	0.813	0.335	0.366
A305 #RT:SAT TOTAL	0.026	0.028	0.053	0.007	0.031	0.034
RSQ	0.418	0.399	0.471	0.654	0.451	0.553
R	0.646	0.632	0.686	0.808	0.671	0.744
F	14.176	13.300	19.800	22.172	63.552	95.912
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.8
(sixth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 728 STRUCTURE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
506 APPLICATION	0.067	0.186	0.094	0.175	0.148	0.171
512 COMPUTE:MULT	0.474	0.227	0.172	0.327	0.262	0.340
A305 #RT:SAT TOTAL	0.142	0.198	0.355	0.060	0.197	0.188
M308 BLKD:WISC SCA	-0.086	0.058	0.295	0.280	0.148	0.173

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
506 APPLICATION	0.078	0.215	0.109	0.203	0.171	0.199
512 COMPUTE:MULT	0.409	0.196	0.149	0.283	0.226	0.294
A305 #RT:SAT TOTAL	0.016	0.022	0.039	0.007	0.022	0.021
M308 BLKD:WISC SCA	-0.062	0.042	0.212	0.201	0.106	0.125
RSQ	0.385	0.291	0.461	0.407	0.354	0.493
R	0.620	0.540	0.679	0.638	0.595	0.702
F	12.350	8.010	19.013	7.487	42.119	74.500
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A7.8
(seventh page)

B. SAT Scale

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DEPENDENT VARIABLE -- A405 SAT-2 TOTAL READING NUMBER RIGHT

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	0.190	0.186	0.169	0.172	0.188	0.198
A305 #RT:SAT TOTAL	0.823	0.675	0.769	0.610	0.729	0.739

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
501 VOCABULARY	1.221	1.196	1.089	1.107	1.207	1.275
A305 #RT:SAT TOTAL	0.887	0.728	0.829	0.658	0.786	0.797
RSQ	0.698	0.805	0.746	0.671	0.726	0.776
R	0.836	0.897	0.864	0.819	0.852	0.881
F	98.321	179.551	140.863	52.001	434.100	506.627
P	0.000	0.000	0.000	0.000	0.0	0.0

Table A8.1
Correlations of End-of-Third-Grade Scales, WISC Scales and Kindergarten Scales
Total Sample

		1	2	3	4	5	6	7	8	9	10	11	12	13
1	701 NMBR CMPARSN	1.00	0.43	0.36	0.45	0.31	0.39	0.40	0.47	0.42	0.41	0.40	0.45	0.30
2	702 PLACE VALUE		1.00	0.44	0.64	0.48	0.46	0.54	0.67	0.61	0.66	0.60	0.64	0.44
3	703 NUMBER LINE			1.00	0.46	0.35	0.35	0.34	0.42	0.34	0.48	0.44	0.47	0.29
4	704 APPLICATION				1.00	0.50	0.51	0.58	0.69	0.57	0.69	0.55	0.60	0.38
5	705 RATIONALS					1.00	0.39	0.38	0.49	0.43	0.53	0.49	0.45	0.35
6	706 STRUCT SPACE						1.00	0.44	0.47	0.46	0.44	0.42	0.55	0.33
7	707 COMPUTE ADD							1.00	0.65	0.61	0.69	0.47	0.56	0.29
8	708 COMPUTE SUBT								1.00	0.64	0.72	0.56	0.64	0.37
9	709 COMPUTE MULT									1.00	0.68	0.59	0.65	0.31
10	727 COMPUTATION										1.00	0.67	0.66	0.36
11	728 STRUCTURE											1.00	0.58	0.33
12	A405 #RT:SAT2 TOTA												1.00	0.48
13	M305 VOCB:WISC SCA													1.00

(continued)

Table A8.1 (second page)

		14	15	16	17	18	19	20	21	22	23	24	25	26
1	701 NMBR CMPARSN	0.32	0.20	0.28	0.38	0.09	0.37	0.25	0.36	0.36	0.26	0.25	0.31	0.17
2	702 PLACE VALUE	0.46	0.27	0.46	0.56	0.27	0.48	0.32	0.42	0.49	0.37	0.33	0.42	0.25
3	703 NUMBER LINE	0.34	0.31	0.36	0.44	0.20	0.32	0.27	0.37	0.34	0.18	0.22	0.19	0.22
4	704 APPLICATION	0.41	0.25	0.42	0.50	0.24	0.52	0.34	0.46	0.48	0.32	0.31	0.43	0.26
5	705 RATIONALS	0.40	0.20	0.38	0.46	0.17	0.37	0.27	0.32	0.28	0.24	0.32	0.30	0.23
6	706 STRUCT SPACE	0.33	0.15	0.35	0.40	0.14	0.34	0.26	0.30	0.26	0.25	0.20	0.29	0.23
7	707 COMPUTE ADD	0.29	0.23	0.34	0.39	0.15	0.43	0.24	0.32	0.34	0.28	0.30	0.36	0.24
8	708 COMPUTE SUBT	0.38	0.20	0.41	0.50	0.22	0.54	0.36	0.47	0.50	0.29	0.33	0.43	0.34
9	709 COMPUTE MULT	0.32	0.24	0.41	0.44	0.15	0.43	0.25	0.34	0.37	0.19	0.30	0.34	0.26
10	727 COMPUTATION	0.41	0.25	0.47	0.51	0.20	0.51	0.33	0.48	0.46	0.29	0.38	0.42	0.30
11	728 STRUCTURE	0.40	0.26	0.47	0.50	0.10	0.39	0.32	0.37	0.37	0.21	0.29	0.37	0.28
12	A405 #RT:SAT2 TOTA	0.47	0.22	0.44	0.56	0.27	0.53	0.36	0.47	0.55	0.33	0.33	0.39	0.27
13	M305 VOCB:WISC SCA	0.56	0.37	0.35	0.80	0.30	0.31	0.20	0.30	0.30	0.38	0.20	0.33	0.17
14	M306 SIML:WISC SCA	1.00	0.34	0.39	0.76	0.28	0.34	0.19	0.25	0.31	0.37	0.23	0.32	0.15
15	M307 P.CM:WISC SCA		1.00	0.39	0.65	0.08	0.20	0.16	0.17	0.17	0.13	0.13	0.15	0.08
16	M308 BLKD:WISC SCA			1.00	0.71	0.14	0.33	0.31	0.29	0.34	0.26	0.36	0.30	0.27
17	M311 TOTL:WISC SCA				1.00	0.28	0.41	0.29	0.36	0.38	0.40	0.31	0.38	0.23
18	003 GEO SHAP:IDEY					1.00	0.23	0.11	0.20	0.19	0.29	0.13	0.16	0.09
19	004 COUNT BUTTONS						1.00	0.37	0.61	0.62	0.42	0.43	0.50	0.26
20	005 WRITE NUMERAL							1.00	0.38	0.47	0.27	0.22	0.35	0.30
21	006 COUNT MEMS:PC								1.00	0.49	0.36	0.41	0.34	0.23
22	007 IDEY NUMERALS									1.00	0.34	0.41	0.43	0.27
23	010 VOCABULARY										1.00	0.26	0.42	0.19
24	012 EQIV SETS:DOT											1.00	0.30	0.25
25	013 ORDINAL NUMBR												1.00	0.34
26	014 ORDRG:GEO SHA													1.00

(continued)

Table A8.1 (third page)

			27	28	29	30	31	32	33	34	35
1	701	NMBR CMPARSN	0.28	0.21	0.18	0.15	0.27	0.24	0.24	0.31	0.38
2	702	PLACE VALUE	0.41	0.32	0.26	0.23	0.42	0.27	0.31	0.45	0.52
3	703	NUMBER LINE	0.28	0.26	0.14	0.13	0.21	0.18	0.32	0.41	0.40
4	704	APPLICATION	0.40	0.32	0.25	0.23	0.32	0.35	0.34	0.40	0.50
5	705	RATIONALS	0.38	0.34	0.12	0.11	0.29	0.12	0.30	0.36	0.38
6	706	STRUCT SPACE	0.25	0.23	0.13	0.07	0.34	0.26	0.37	0.30	0.45
7	707	COMPUTE ADD	0.29	0.27	0.11	0.12	0.23	0.14	0.32	0.40	0.39
8	708	COMPUTE SUBT	0.41	0.38	0.26	0.22	0.29	0.26	0.29	0.41	0.44
9	709	COMPUTE MULT	0.33	0.29	0.14	0.12	0.25	0.18	0.32	0.39	0.40
10	727	COMPUTATION	0.39	0.36	0.19	0.18	0.29	0.24	0.37	0.44	0.47
11	728	STRUCTURE	0.29	0.30	0.16	0.14	0.26	0.16	0.31	0.42	0.41
12	A405	#RT:SAT2 TOTA	0.39	0.35	0.33	0.29	0.42	0.29	0.38	0.41	0.54
13	M305	VOCB:WISC SCA	0.32	0.20	0.28	0.20	0.57	0.36	0.35	0.31	0.57
14	M306	SIML:WISC SCA	0.41	0.24	0.29	0.26	0.44	0.32	0.27	0.29	0.48
15	M307	P.CM:WISC SCA	0.23	0.09	0.07	0.04	0.27	0.15	0.28	0.35	0.38
16	M308	BLKD:WISC SCA	0.31	0.24	0.13	0.12	0.37	0.20	0.34	0.55	0.52
17	M311	TOTL:WISC SCA	0.43	0.26	0.27	0.22	0.58	0.36	0.42	0.51	0.67
18	C03	GEO SHAP:IDFY	0.34	0.13	0.27	0.23	0.24	0.20	0.13	0.08	0.24
19	C04	COUNT BUTTONS	0.45	0.44	0.40	0.40	0.29	0.16	0.32	0.30	0.38
20	C05	WRITE NUMERAL	0.34	0.43	0.21	0.22	0.23	0.12	0.22	0.22	0.28
21	C06	COUNT MEMS:PC	0.43	0.38	0.35	0.37	0.31	0.17	0.31	0.28	0.38
22	007	IDFY NUMERALS	0.40	0.44	0.30	0.32	0.26	0.20	0.29	0.29	0.37
23	010	VOCABULARY	0.43	0.28	0.29	0.34	0.42	0.20	0.25	0.19	0.38
24	012	EQIV SETS:DOT	0.39	0.25	0.21	0.21	0.21	0.09	0.31	0.37	0.34
25	013	ORDINAL NUMBE	0.44	0.48	0.22	0.19	0.20	0.18	0.25	0.29	0.33
26	C14	ORDRG:GEO SHA	0.27	0.22	0.12	0.15	0.10	0.06	0.24	0.26	0.23
27	C15	CLASSIFYING	1.00	0.38	0.32	0.29	0.31	0.17	0.24	0.23	0.34
28	016	ROTE COUNTING		1.00	0.21	0.22	0.19	0.14	0.23	0.18	0.27
29	020	COLOR:NAMING			1.00	0.80	0.24	0.18	0.13	0.16	0.26
30	021	COLOR:IDFYING				1.00	0.18	0.13	0.10	0.16	0.20
31	M112	VOCB:WPSI SCA					1.00	0.40	0.38	0.34	0.77
32	M114	SIML:WSPI SCA						1.00	0.15	0.19	0.64
33	M117	P.CM:WPSI SCA							1.00	0.44	0.70
34	M120	BLKD:WPSI SCA								1.00	0.69
35	M123	TOTL-SWPSI SC									1.00

TABLE A8.2
CORRELATIONS WITHIN CELLS
OF END-OF-THIRD-GRADE SCALES AND KINDERGARTEN SCALES
LONGITUDINAL SAMPLE

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
003 GEO SHAP:IDFY	1	1.00	0.18	0.06	0.10	0.04	0.10	0.04	0.06	0.05	0.41	0.12	0.12	0.11	-0.02	0.04	0.08
004 COUNT BUTTONS	2		1.00	0.42	0.57	0.56	0.52	0.38	0.53	0.25	0.40	0.55	0.35	0.27	0.31	0.33	0.42
005 WRITE NUMERALS	3			1.00	0.28	0.43	0.34	0.23	0.39	0.22	0.22	0.58	0.39	0.22	0.27	0.19	0.36
006 COUNT MEMS:PC	4				1.00	0.36	0.45	0.46	0.25	0.15	0.32	0.35	0.33	0.22	0.34	0.29	0.39
007 IDFY NUMERALS	5					1.00	0.38	0.40	0.27	0.18	0.28	0.48	0.31	0.31	0.27	0.24	0.38
010 VOCABULARY	6						1.00	0.28	0.42	0.13	0.49	0.35	0.44	0.34	0.22	0.27	0.43
012 EQIV SETS:DOTS	7							1.00	0.26	0.22	0.31	0.33	0.16	0.17	0.17	0.31	0.27
013 ORDINAL NUMBER	8								1.00	0.41	0.43	0.42	0.29	0.16	0.23	0.40	0.36
014 ORDRG:GEO SHAP	9									1.00	0.23	0.28	0.03	0.00	0.04	0.16	0.07
015 CLASSIFYING	10										1.00	0.45	0.24	0.16	0.11	0.24	0.25
016 ROTE COUNTING	11											1.00	0.43	0.23	0.20	0.32	0.39
M112 VOCB:WPSI SCA	12												1.00	0.44	0.50	0.51	0.82
M114 SIML:WPSI SCA	13													1.00	0.21	0.24	0.66
M117 P.CM:WPSI SCA	14														1.00	0.51	0.74
M120 BLKD:WPSI SCA	15															1.00	0.75
M123 TOTL:WPSI SCA	16																1.00

		17	18	19	20	21	22	23	24	25	26	27	28
003 GEO SHAP:IDFY	1	-0.04	0.18	0.11	0.20	0.08	-0.16	-0.06	-0.02	-0.01	0.07	0.20	0.11
004 COUNT BUTTONS	2	0.32	0.51	0.32	0.58	0.26	0.17	0.45	0.50	0.33	0.46	0.21	0.62
005 WRITE NUMERALS	3	0.07	0.37	0.23	0.27	0.15	0.17	0.16	0.26	0.12	0.16	0.20	0.36
006 COUNT MEMS:PC	4	0.22	0.39	0.29	0.39	0.11	0.09	0.20	0.28	0.05	0.30	0.01	0.37
007 IDFY NUMERALS	5	0.32	0.43	0.39	0.47	0.28	0.10	0.27	0.41	0.30	0.33	0.21	0.59
010 VOCABULARY	6	0.17	0.38	0.17	0.35	0.16	0.11	0.23	0.20	-0.01	0.21	-0.01	0.31
012 EQIV SETS:DOTS	7	0.17	0.21	0.09	0.37	0.18	0.13	0.22	0.31	0.13	0.28	-0.02	0.25
013 ORDINAL NUMBER	8	0.10	0.40	0.12	0.45	0.19	0.18	0.41	0.37	0.27	0.35	0.18	0.33
014 ORDRG:GEO SHAP	9	0.07	0.20	0.07	0.09	0.25	0.07	0.17	0.24	0.27	0.20	0.25	0.28
015 CLASSIFYING	10	0.10	0.30	0.30	0.36	0.28	0.05	0.20	0.32	0.18	0.31	0.22	0.30
016 ROTE COUNTING	11	0.10	0.44	0.36	0.34	0.30	0.13	0.29	0.43	0.19	0.39	0.32	0.39
M112 VOCB:WPSI SCA	12	0.23	0.46	0.24	0.29	0.16	0.25	0.29	0.21	0.19	0.28	0.20	0.43
M114 SIML:WPSI SCA	13	0.33	0.31	0.27	0.33	0.02	0.19	0.24	0.25	0.27	0.37	0.21	0.34
M117 P.CM:WPSI SCA	14	0.25	0.30	0.30	0.33	0.14	0.19	0.26	0.13	0.27	0.25	0.26	0.37
M120 BLKD:WPSI SCA	15	0.50	0.47	0.35	0.41	0.26	0.21	0.43	0.36	0.35	0.42	0.23	0.32
M123 TOTL:WPSI SCA	16	0.38	0.51	0.39	0.46	0.20	0.29	0.41	0.32	0.37	0.45	0.31	0.49
701 NMBR CMPARSN	17	1.00	0.37	0.40	0.49	0.21	0.24	0.39	0.39	0.37	0.32	0.25	0.37
702 PLACE VALUE	18		1.00	0.26	0.66	0.33	0.38	0.50	0.67	0.41	0.59	0.45	0.60
703 NUMBER LINE	19			1.00	0.37	0.15	0.04	0.29	0.28	0.30	0.41	0.27	0.35
704 APPLICATION	20				1.00	0.40	0.34	0.60	0.66	0.52	0.63	0.46	0.55
705 RATIONALS	21					1.00	0.20	0.32	0.34	0.30	0.26	0.32	0.35
706 STRUCT SPACE	22						1.00	0.37	0.39	0.31	0.28	0.30	0.38
707 COMPUTE ADD	23							1.00	0.60	0.63	0.77	0.26	0.55
708 COMPUTE SUBT	24								1.00	0.57	0.68	0.47	0.62
709 COMPUTE MULT	25									1.00	0.59	0.50	0.55
727 COMPUTATION	26										1.00	0.42	0.56
728 STRUCTURE	27											1.00	0.46
A405 #RT:SAT TOTAL	28												1.00

N = 84 FOR CELL A1

TABLE A8.2
(SECOND PAGE)

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
003 GEO SHAP:IDFY	1	1.00	0.29	0.04	0.26	0.19	0.32	0.26	0.07	0.08	0.38	-0.06	0.28	0.14	0.21	0.12	0.29
004 COUNT BUTTONS	2		1.00	0.30	0.66	0.51	0.39	0.32	0.27	0.22	0.38	0.37	0.15	0.07	0.36	0.27	0.32
005 WRITE NUMERALS	3			1.00	0.35	0.44	0.26	0.19	0.14	0.30	0.29	0.16	0.11	0.04	0.06	0.18	0.15
006 COUNT MEMS:PC	4				1.00	0.44	0.33	0.29	0.19	0.33	0.42	0.25	0.15	0.07	0.25	0.31	0.29
007 IDFY NUMERALS	5					1.00	0.35	0.32	0.29	0.29	0.23	0.37	0.13	0.13	0.23	0.34	0.32
010 VOCABULARY	6						1.00	0.33	0.38	0.42	0.37	0.26	0.29	0.25	0.27	0.33	0.44
012 EQIV SETS:DOTS	7							1.00	0.14	0.24	0.43	0.21	0.26	-0.10	0.42	0.32	0.35
013 ORDINAL NUMBER	8								1.00	0.38	0.32	0.46	-0.01	0.05	0.19	0.24	0.18
014 ORDRG:GEO SHAP	9									1.00	0.28	0.28	0.23	0.09	0.34	0.37	0.39
015 CLASSIFYING	10										1.00	0.19	0.42	0.21	0.19	0.30	0.43
016 ROTE COUNTING	11											1.00	0.02	-0.05	0.42	0.15	0.21
M112 VOCB:WPSI SCA	12												1.00	0.41	0.34	0.28	0.79
M114 SIML:WPSI SCA	13													1.00	-0.08	0.07	0.54
M117 P.CM:WPSI SCA	14														1.00	0.39	0.63
M120 BLKD:WPSI SCA	15															1.00	0.65
M123 TOTL:WPSI SCA	16																1.00

		17	18	19	20	21	22	23	24	25	26	27	28
003 GEO SHAP:IDFY	1	0.15	0.35	0.14	0.20	0.25	0.25	0.19	0.25	0.19	0.16	-0.04	0.27
004 COUNT BUTTONS	2	0.34	0.32	0.39	0.49	0.36	0.30	0.31	0.45	0.29	0.37	0.32	0.36
005 WRITE NUMERALS	3	0.18	0.21	0.30	0.30	0.30	0.11	0.18	0.36	0.12	0.34	0.28	0.28
006 COUNT MEMS:PC	4	0.25	0.33	0.42	0.53	0.24	0.29	0.35	0.43	0.33	0.42	0.22	0.38
007 IDFY NUMERALS	5	0.22	0.37	0.29	0.42	0.20	0.16	0.12	0.34	0.28	0.39	0.33	0.43
010 VOCABULARY	6	0.14	0.39	0.26	0.36	0.32	0.29	0.24	0.32	0.25	0.28	0.14	0.35
012 EQIV SETS:DOTS	7	0.24	0.25	0.22	0.18	0.32	0.17	0.32	0.23	0.23	0.30	0.28	0.38
013 ORDINAL NUMBER	8	0.32	0.34	0.18	0.33	0.26	0.27	0.18	0.27	0.32	0.29	0.41	0.33
014 ORDRG:GEO SHAP	9	0.15	0.16	0.35	0.35	0.25	0.39	0.14	0.28	0.27	0.18	0.16	0.28
015 CLASSIFYING	10	0.23	0.44	0.40	0.40	0.46	0.22	0.23	0.38	0.21	0.33	0.22	0.34
016 ROTE COUNTING	11	0.23	0.20	0.19	0.15	0.30	0.12	0.27	0.16	0.19	0.22	0.31	0.28
M112 VOCB:WPSI SCA	12	0.06	0.33	0.19	0.23	0.33	0.32	0.01	0.19	0.22	0.21	0.03	0.31
M114 SIML:WPSI SCA	13	0.10	0.21	0.07	0.35	0.04	0.20	-0.03	0.22	0.18	0.14	-0.11	0.19
M117 P.CM:WPSI SCA	14	0.12	0.27	0.26	0.20	0.30	0.37	0.20	0.07	0.31	0.32	0.16	0.30
M120 BLKD:WPSI SCA	15	0.29	0.37	0.46	0.38	0.31	0.27	0.21	0.34	0.43	0.28	0.27	0.42
M123 TOTL:WPSI SCA	16	0.21	0.45	0.37	0.44	0.38	0.44	0.14	0.31	0.43	0.36	0.13	0.46
701 NMBR CMPARSN	17	1.00	0.27	0.31	0.35	0.38	0.30	0.37	0.40	0.26	0.30	0.34	0.34
702 PLACE VALUE	18		1.00	0.36	0.43	0.50	0.46	0.37	0.49	0.65	0.54	0.44	0.59
703 NUMBER LINE	19			1.00	0.50	0.46	0.26	0.22	0.39	0.29	0.39	0.44	0.48
704 APPLICATION	20				1.00	0.40	0.52	0.30	0.54	0.51	0.63	0.27	0.55
705 RATIONALS	21					1.00	0.37	0.33	0.51	0.50	0.55	0.41	0.53
706 STRUCT SPACE	22						1.00	0.26	0.30	0.46	0.32	0.16	0.49
707 COMPUTE ADD	23							1.00	0.60	0.30	0.50	0.28	0.45
708 COMPUTE SUBT	24								1.00	0.54	0.65	0.41	0.58
709 COMPUTE MULT	25									1.00	0.60	0.44	0.62
727 COMPUTATION	26										1.00	0.41	0.68
728 STRUCTURE	27											1.00	0.49
A405 #RT:SAT TOTAL	28												1.00

N = 83 FOR CELL B1

(CONTINUED)

TABLE A8.2
(THIRD PAGE)

MATRIX FOR CELL C1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
003 GEO SHAP:IDFY	1	1.00	0.09	0.07	0.19	0.14	0.31	0.07	0.15	-0.06	0.24	0.20	0.20	0.06	0.05	0.02	0.13
004 COUNT BUTTONS	2		1.00	0.44	0.66	0.61	0.27	0.49	0.58	0.22	0.51	0.42	0.15	-0.06	0.15	0.25	0.19
005 WRITE NUMERALS	3			1.00	0.50	0.55	0.22	0.20	0.44	0.24	0.37	0.40	0.14	0.03	0.21	0.20	0.23
006 COUNT MEMS:PC	4				1.00	0.50	0.26	0.48	0.37	0.12	0.46	0.41	0.28	0.03	0.22	0.14	0.27
007 IDFY NUMERALS	5					1.00	0.19	0.37	0.44	0.22	0.46	0.44	0.12	-0.06	0.14	0.07	0.10
010 VOCABULARY	6						1.00	0.06	0.46	0.06	0.39	0.30	0.42	-0.02	0.21	-0.01	0.24
012 EQIV SETS:DOTS	7							1.00	0.29	0.18	0.31	0.19	0.22	0.04	0.18	0.37	0.32
013 ORDINAL NUMBER	8								1.00	0.29	0.33	0.41	0.11	-0.13	0.12	0.15	0.10
014 ORDRG:GEO SHAP	9									1.00	0.26	0.08	-0.16	-0.15	0.08	0.14	-0.04
015 CLASSIFYING	10										1.00	0.31	0.19	-0.03	0.27	0.06	0.19
016 ROTE COUNTING	11											1.00	0.28	0.06	0.01	-0.08	0.11
M112 VOCB:WPSI SCA	12												1.00	0.36	0.32	0.13	0.74
M114 SIML:WPSI SCA	13													1.00	0.01	0.02	0.58
M117 P.CM:WPSI SCA	14														1.00	0.24	0.62
M120 BLKD:WPSI SCA	15															1.00	0.55
M123 TOTL:WPSI SCA	16																1.00

		17	18	19	20	21	22	23	24	25	26	27	28
003 GEO SHAP:IDFY	1	0.09	0.20	0.17	0.07	0.06	0.04	0.10	0.12	0.15	0.14	0.11	0.23
004 COUNT BUTTONS	2	0.43	0.46	0.15	0.47	0.38	0.33	0.36	0.50	0.51	0.51	0.36	0.48
005 WRITE NUMERALS	3	0.29	0.37	-0.00	0.35	0.20	0.31	0.32	0.36	0.35	0.38	0.36	0.45
006 COUNT MEMS:PC	4	0.33	0.35	0.10	0.37	0.27	0.29	0.21	0.43	0.35	0.40	0.28	0.43
007 IDFY NUMERALS	5	0.32	0.44	-0.03	0.42	0.17	0.12	0.28	0.51	0.39	0.38	0.26	0.43
010 VOCABULARY	6	0.23	0.25	0.02	0.13	0.01	0.23	0.26	0.15	0.10	0.13	0.09	0.20
012 EQIV SETS:DOTS	7	0.30	0.38	0.11	0.22	0.26	0.14	0.25	0.35	0.37	0.44	0.26	0.33
013 ORDINAL NUMBER	8	0.36	0.33	-0.08	0.29	0.03	0.29	0.37	0.29	0.31	0.31	0.16	0.31
014 ORDRG:GEO SHAP	9	0.04	0.09	-0.14	0.08	0.02	0.09	0.17	0.28	0.13	0.25	0.14	0.12
015 CLASSIFYING	10	0.40	0.29	-0.04	0.34	0.25	0.27	0.26	0.38	0.35	0.33	0.18	0.40
016 ROTE COUNTING	11	0.17	0.22	0.02	0.26	0.25	0.21	0.14	0.30	0.32	0.21	0.12	0.31
M112 VOCB:WPSI SCA	12	0.17	0.23	-0.05	0.08	0.26	0.24	0.05	0.15	0.04	0.06	0.01	0.18
M114 SIML:WPSI SCA	13	0.15	0.12	0.01	0.11	0.00	0.16	-0.15	0.08	-0.02	-0.05	0.11	0.12
M117 P.CM:WPSI SCA	14	0.12	0.02	-0.07	0.03	0.10	0.24	0.25	0.14	-0.00	0.14	0.08	0.16
M120 BLKD:WPSI SCA	15	0.26	0.33	0.15	0.14	0.34	0.16	0.37	0.36	0.36	0.46	0.43	0.33
M123 TOTL:WPSI SCA	16	0.28	0.28	0.02	0.14	0.28	0.32	0.20	0.29	0.15	0.23	0.25	0.31
701 NMBR CMPARSN	17	1.00	0.42	0.21	0.39	0.22	0.31	0.33	0.50	0.39	0.41	0.38	0.49
702 PLACE VALUE	18		1.00	0.27	0.60	0.30	0.29	0.46	0.67	0.57	0.60	0.56	0.50
703 NUMBER LINE	19			1.00	0.16	0.26	0.19	0.10	0.14	0.23	0.29	0.32	0.31
704 APPLICATION	20				1.00	0.37	0.39	0.53	0.59	0.63	0.65	0.48	0.51
705 RATIONALS	21					1.00	0.26	0.29	0.40	0.40	0.40	0.34	0.27
706 STRUCT SPACE	22						1.00	0.33	0.32	0.38	0.32	0.33	0.45
707 COMPUTE ADD	23							1.00	0.60	0.66	0.64	0.50	0.51
708 COMPUTE SUBT	24								1.00	0.67	0.68	0.54	0.56
709 COMPUTE MULT	25									1.00	0.70	0.60	0.70
727 COMPUTATION	26										1.00	0.73	0.63
728 STRUCTURE	27											1.00	0.63
A405 #RT:SAT TOTAL	28												1.00

N = 94 FOR CELL C1

(CONTINUED)

TABLE A8.2
(FOURTH PAGE)

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
003 GEO SHAP:IDFY	1	1.00	0.29	0.21	0.21	0.22	0.46	0.12	0.28	0.24	0.37	0.24	0.27	0.40	0.17	0.22	0.44
004 COUNT BUTTONS	2		1.00	0.32	0.48	0.73	0.56	0.52	0.54	0.26	0.35	0.44	0.07	0.22	0.38	0.20	0.37
005 WRITE NUMERALS	3			1.00	0.31	0.46	0.30	0.25	0.52	0.32	0.44	0.66	0.25	0.04	0.29	0.24	0.34
006 COUNT MEMS:PC	4				1.00	0.57	0.50	0.38	0.37	0.16	0.51	0.47	0.37	0.27	0.17	0.13	0.39
007 IDFY NUMERALS	5					1.00	0.47	0.49	0.55	0.27	0.50	0.54	0.09	0.12	0.29	0.25	0.31
010 VOCABULARY	6						1.00	0.34	0.46	0.01	0.36	0.37	0.48	0.28	0.23	0.14	0.48
012 EQIV SETS:DOTS	7							1.00	0.43	0.38	0.35	0.18	0.09	-0.06	0.44	0.41	0.36
013 ORDINAL NUMBER	8								1.00	0.25	0.48	0.64	0.14	0.25	0.37	0.25	0.42
014 ORDRG:GEO SHAP	9									1.00	0.22	0.24	-0.03	0.09	0.30	0.37	0.29
015 CLASSIFYING	10										1.00	0.55	0.30	0.16	0.33	0.10	0.38
016 ROTE COUNTING	11											1.00	0.16	0.18	0.22	0.10	0.28
M112 VOCB:WPSI SCA	12												1.00	0.26	-0.05	0.08	0.54
M114 SIML:WPSI SCA	13													1.00	0.20	0.03	0.65
M117 P.CM:WPSI SCA	14														1.00	0.33	0.63
M120 BLKD:WPSI SCA	15															1.00	0.57
M123 TOTL:WPSI SCA	16																1.00

		17	18	19	20	21	22	23	24	25	26	27	28
003 GEO SHAP:IDFY	1	0.13	0.56	0.23	0.55	0.38	0.24	0.47	0.48	0.29	0.38	0.30	0.37
004 COUNT BUTTONS	2	0.31	0.38	0.16	0.31	0.35	0.15	0.47	0.52	0.46	0.52	0.38	0.40
005 WRITE NUMERALS	3	0.29	0.26	0.27	0.34	0.33	0.21	0.20	0.37	0.07	0.27	0.30	0.35
006 COUNT MEMS:PC	4	0.43	0.30	0.30	0.38	0.21	0.14	0.23	0.30	0.27	0.47	0.39	0.56
007 IDFY NUMERALS	5	0.37	0.38	0.32	0.37	0.39	0.10	0.32	0.43	0.21	0.53	0.35	0.56
010 VOCABULARY	6	0.45	0.51	0.15	0.47	0.41	0.18	0.41	0.40	0.44	0.55	0.42	0.48
012 EQIV SETS:DOTS	7	0.28	0.42	0.24	0.28	0.23	-0.01	0.28	0.37	0.24	0.41	0.38	0.17
013 ORDINAL NUMBER	8	0.37	0.43	0.21	0.45	0.42	0.19	0.33	0.66	0.47	0.57	0.58	0.40
014 ORDRG:GEO SHAP	9	0.27	0.42	0.28	0.23	0.12	0.08	0.35	0.38	0.25	0.25	0.31	0.21
015 CLASSIFYING	10	0.27	0.37	0.34	0.30	0.31	0.27	0.26	0.39	0.20	0.36	0.31	0.38
016 ROTE COUNTING	11	0.28	0.36	0.24	0.35	0.44	0.26	0.25	0.52	0.38	0.48	0.48	0.40
M112 VOCB:WPSI SCA	12	0.38	0.34	0.04	0.25	0.09	0.21	0.03	0.09	-0.01	0.05	0.19	0.28
M114 SIML:WPSI SCA	13	0.10	0.32	0.15	0.46	0.36	0.36	0.37	0.32	0.27	0.38	0.30	0.40
M117 P.CM:WPSI SCA	14	0.18	0.34	0.33	0.35	0.43	0.15	0.30	0.40	0.16	0.37	0.32	0.14
M120 BLKD:WPSI SCA	15	0.20	0.44	0.30	0.31	0.27	0.09	0.22	0.17	0.20	0.30	0.46	0.30
M123 TOTL:WPSI SCA	16	0.36	0.59	0.34	0.57	0.49	0.35	0.39	0.42	0.26	0.47	0.53	0.47
701 NMBR CMPARSN	17	1.00	0.34	0.19	0.39	0.37	0.14	0.16	0.18	0.22	0.34	0.41	0.16
702 PLACE VALUE	18		1.00	0.29	0.61	0.59	0.23	0.56	0.55	0.43	0.66	0.50	0.53
703 NUMBER LINE	19			1.00	0.32	0.18	0.09	0.11	0.07	0.03	0.37	0.31	0.35
704 APPLICATION	20				1.00	0.65	0.36	0.61	0.57	0.23	0.58	0.47	0.47
705 RATIONALS	21					1.00	0.46	0.35	0.46	0.22	0.52	0.45	0.47
706 STRUCT SPACE	22						1.00	0.32	0.30	0.16	0.22	0.42	0.41
707 COMPUTE ADD	23							1.00	0.63	0.55	0.65	0.37	0.31
708 COMPUTE SUBT	24								1.00	0.54	0.63	0.46	0.35
709 COMPUTE MULT	25									1.00	0.63	0.52	0.34
727 COMPUTATION	26										1.00	0.65	0.54
728 STRUCTURE	27											1.00	0.43
A405 #RT:SAT TOTAL	28												1.00

N = 54 FOR CELL D1

Table A8.3
Regression Weights by Cell
for End-of-Third-Grade Scales
Using Kindergarten Scales as Covariates
Longitudinal Sample

A. Mathematics Scales

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DEPENDENT VARIABLE -- 701 NUMBER COMPARISON: ORDER

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.083	0.283	0.310	-0.036	0.177	0.169
006 COUNT MEMS:PC	0.015	-0.007	-0.002	0.237	0.065	0.082
007 IDFY NUMERALS	0.203	0.081	0.109	0.217	0.139	0.147
M123 TOTL-SWPSI SC	0.275	0.139	0.273	0.224	0.220	0.243

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.056	0.192	0.210	-0.024	0.120	0.114
006 COUNT MEMS:PC	0.011	-0.004	-0.001	0.139	0.038	0.048
007 IDFY NUMERALS	0.114	0.045	0.061	0.122	0.078	0.083
M123 TOTL-SWPSI SC	0.063	0.032	0.062	0.051	0.050	0.055
RSQ	0.234	0.158	0.232	0.226	0.201	0.257
R	0.484	0.397	0.482	0.475	0.448	0.507
F	7.113	3.930	7.191	3.864	21.376	29.391
P	0.000	0.006	0.000	0.008	0.000	0.000

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DEPENDENT VARIABLE -- 702 PLACE VALUE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
007 IDFY NUMERALS	0.208	0.163	0.362	0.150	0.223	0.258
013 ORDINAL NUMBE	0.130	0.147	0.078	0.092	0.115	0.148
015 CLASSIFYING	0.089	0.177	0.021	-0.006	0.084	0.089
M123 TOTL-SWPSI SC	0.289	0.233	0.230	0.378	0.267	0.346

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
007 IDFY NUMERALS	0.151	0.118	0.263	0.109	0.162	0.187
013 ORDINAL NUMBE	0.169	0.191	0.102	0.120	0.150	0.192
015 CLASSIFYING	0.099	0.197	0.024	-0.007	0.094	0.099
M123 TOTL-SWPSI SC	0.085	0.069	0.068	0.111	0.078	0.102
RSQ	0.375	0.317	0.239	0.335	0.296	0.409
R	0.612	0.563	0.489	0.579	0.544	0.639
F	13.958	9.733	7.461	8.689	35.740	58.754
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A8.3
(second page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 703 NUMBER LINE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C03 GEO SHAP:IDFY	0.081	0.008	0.150	0.149	0.102	0.131
C06 COUNT MEMS:PC	0.112	0.348	0.133	0.115	0.164	0.199
C07 IDFY NUMERALS	0.224	0.020	-0.082	0.238	0.091	0.116
M120 BLKD:WPSI SCA	0.217	0.403	0.133	0.225	0.258	0.263

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C03 GEO SHAP:IDFY	0.081	0.008	0.151	0.150	0.102	0.131
C06 COUNT MEMS:PC	0.049	0.154	0.059	0.051	0.073	0.088
C07 IDFY NUMERALS	0.095	0.009	-0.035	0.101	0.039	0.049
M120 BLKD:WPSI SCA	0.109	0.202	0.067	0.113	0.129	0.132
RSQ	0.252	0.306	0.080	0.188	0.176	0.236
R	0.502	0.553	0.282	0.433	0.419	0.486
F	7.741	9.164	2.037	3.064	17.960	26.042
P	0.000	0.000	0.095	0.024	0.000	0.000

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DEPENDENT VARIABLE -- 704 APPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C04 COUNT BUTTONS	0.276	0.415	0.306	-0.159	0.254	0.272
C07 IDFY NUMERALS	0.163	0.105	0.184	0.276	0.161	0.170
C13 ORDINAL NUMBE	0.137	0.137	-0.015	0.143	0.102	0.116
M123 TOTL-SWPSI SC	0.213	0.263	0.073	0.485	0.231	0.269

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C04 COUNT BUTTONS	0.230	0.346	0.256	-0.133	0.212	0.227
C07 IDFY NUMERALS	0.112	0.072	0.127	0.191	0.111	0.117
C13 ORDINAL NUMBE	0.170	0.169	-0.019	0.177	0.127	0.144
M123 TOTL-SWPSI SC	0.060	0.074	0.020	0.136	0.065	0.075
RSQ	0.407	0.371	0.275	0.384	0.328	0.418
R	0.638	0.609	0.524	0.620	0.573	0.646
F	15.576	12.389	8.993	8.273	41.531	60.930
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A8.3
(third page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 705 RATIONALS

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C04 COUNT BUTTONS	0.037	0.271	0.180	0.106	0.129	0.186
015 CLASSIFYING	0.137	0.273	0.051	0.039	0.140	0.168
016 RUTE COUNTING	0.147	0.137	0.214	0.293	0.180	0.170
M12C BLKD:WPSI SCA	0.103	0.223	0.249	0.214	0.194	0.240

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C04 COUNT BUTTONS	0.026	0.193	0.129	0.076	0.092	0.133
015 CLASSIFYING	0.125	0.247	0.046	0.036	0.127	0.152
016 RUTE COUNTING	0.155	0.148	0.231	0.316	0.194	0.183
M12C BLKD:WPSI SCA	0.073	0.156	0.175	0.150	0.136	0.168
RSQ	0.145	0.317	0.236	0.264	0.221	0.295
R	0.380	0.563	0.485	0.514	0.470	0.543
F	4.032	9.744	7.323	4.763	24.087	35.407
P	0.005	0.000	0.000	0.002	0.000	0.000

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DEPENDENT VARIABLE -- 706 STRUCTURE OF SPACE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C04 COUNT BUTTONS	0.027	0.245	0.281	0.061	0.160	0.198
014 ORDRG:GEC SHA	0.015	0.191	0.056	-0.033	0.081	0.099
M123 TOTL-SWPSI SC	0.243	0.336	0.324	0.469	0.309	0.327

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C04 COUNT BUTTONS	0.017	0.155	0.178	0.039	0.101	0.125
014 ORDRG:GEC SHA	0.028	0.352	0.103	-0.061	0.150	0.182
M123 TOTL-SWPSI SC	0.052	0.071	0.069	0.100	0.065	0.069
RSQ	0.109	0.291	0.214	0.157	0.172	0.239
R	0.330	0.539	0.463	0.396	0.415	0.489
F	3.818	11.621	8.714	3.341	23.679	35.689
P	0.012	0.000	0.000	0.026	0.000	0.000

(continued)

Table A8.3
(fourth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 707 COMPUTATION: ADDITION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.350	0.252	0.146	0.345	0.282	0.323
013 ORDINAL NUMBE	0.165	0.068	0.296	0.051	0.140	0.163
M120 BLKD:WPSI SCA	0.299	0.068	0.319	0.072	0.208	0.235

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.332	0.239	0.138	0.327	0.268	0.306
013 ORDINAL NUMBE	0.232	0.096	0.415	0.071	0.197	0.230
M120 BLKD:WPSI SCA	0.277	0.063	0.296	0.066	0.193	0.219
RSQ	0.353	0.113	0.266	0.223	0.239	0.317
R	0.594	0.336	0.516	0.473	0.489	0.563
F	17.118	3.604	11.601	5.179	35.742	52.644
P	0.000	0.017	0.000	0.003	0.000	0.000

****

DEPENDENT VARIABLE -- 708 COMPUTATION: SUBTRACTION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.281	0.355	0.142	0.322	0.263	0.301
007 IDFY NUMERALS	0.197	0.020	0.312	0.012	0.151	0.167
014 ORDRG:GEO SHA	0.059	0.049	0.093	0.183	0.071	0.089
015 CLASSIFYING	0.119	0.171	0.071	0.161	0.127	0.133
M120 BLKD:WPSI SCA	0.233	0.149	0.249	-0.041	0.176	0.192

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.261	0.329	0.131	0.298	0.244	0.279
007 IDFY NUMERALS	0.151	0.015	0.240	0.009	0.116	0.128
014 ORDRG:GEO SHA	0.159	0.133	0.252	0.496	0.194	0.241
015 CLASSIFYING	0.140	0.202	0.084	0.190	0.150	0.156
M120 BLKD:WPSI SCA	0.211	0.135	0.226	-0.037	0.160	0.174
RSQ	0.399	0.260	0.402	0.350	0.336	0.417
R	0.632	0.510	0.634	0.592	0.580	0.646
F	12.223	5.829	12.657	5.602	34.373	48.545
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A8.3
(fifth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 709 COMPUTATION: MULTIPLICATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.259	0.132	0.389	0.269	0.290	0.338
015 CLASSIFYING	0.078	0.058	0.123	0.049	0.086	0.116
M120 BLKD:WPSI SCA	0.242	0.261	0.268	0.109	0.229	0.284

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.259	0.132	0.389	0.269	0.290	0.338
015 CLASSIFYING	0.095	0.074	0.156	0.063	0.110	0.147
M120 BLKD:WPSI SCA	0.237	0.255	0.263	0.106	0.224	0.278
RSQ	0.211	0.199	0.344	0.198	0.244	0.328
R	0.459	0.446	0.586	0.444	0.494	0.573
F	8.331	7.025	16.749	4.432	36.688	55.527
P	0.000	0.000	0.000	0.007	0.000	0.000

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DEPENDENT VARIABLE -- 727 COMPUTATION

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.305	0.073	0.221	0.194	0.228	0.231
006 COUNT MEMS:PC	0.007	0.230	0.193	0.173	0.129	0.157
013 ORDINAL NUMBE	0.027	0.149	0.103	0.256	0.150	0.175
M120 BLKD:WPSI SCA	0.164	0.009	0.357	0.085	0.175	0.176
M123 TOTL-SWPSI SC	0.144	0.206	-0.100	0.200	0.088	0.135

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.421	0.160	0.305	0.268	0.314	0.318
006 COUNT MEMS:PC	0.003	0.276	0.253	0.234	0.155	0.189
013 ORDINAL NUMBE	0.056	0.306	0.213	0.528	0.308	0.360
M120 BLKD:WPSI SCA	0.224	0.013	0.487	0.116	0.239	0.240
M123 TOTL-SWPSI SC	0.067	0.056	-0.046	0.093	0.041	0.063
RSQ	0.329	0.243	0.368	0.482	0.323	0.419
R	0.574	0.493	0.607	0.694	0.568	0.647
F	8.152	5.066	10.482	9.298	30.513	46.188
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A8.3
(sixth page)

A. Mathematics Scales (continued)

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DEPENDENT VARIABLE -- 728 STRUCTURE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.059	0.185	0.212	0.045	0.109	0.160
005 WRITE NUMERAL	0.095	0.119	0.227	-0.058	0.126	0.114
013 ORDINAL NUMBE	0.019	0.295	-0.100	0.403	0.153	0.212
M120 BLKD:WPSI SCA	0.109	0.110	0.301	0.372	0.208	0.276

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
004 COUNT BUTTONS	0.049	0.154	0.177	0.037	0.091	0.133
005 WRITE NUMERAL	0.109	0.131	0.250	-0.064	0.138	0.125
013 ORDINAL NUMBE	0.024	0.368	-0.124	0.502	0.191	0.265
M120 BLKD:WPSI SCA	0.090	0.091	0.249	0.307	0.172	0.228
RSQ	0.089	0.260	0.290	0.463	0.220	0.306
R	0.295	0.510	0.535	0.681	0.469	0.553
F	2.064	7.020	9.313	10.999	22.691	35.358
P	0.093	0.000	0.000	0.000	0.000	0.000

(continued)

Table A8.3
(seventh page)
B. SAT Scale

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DEPENDENT VARIABLE -- A405 SAT-2 TOTAL READING NUMBER RIGHT

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
CC4 COUNT BUTTONS	0.361	0.138	0.279	-0.116	0.230	0.253
CC7 IDFY NUMERALS	0.368	0.246	0.199	0.482	0.282	0.293
M123 TOTL-SWPSI SC	0.200	0.292	0.264	0.334	0.267	0.318

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
CC4 COUNT BUTTONS	2.976	0.987	2.298	-0.953	1.890	2.086
CC7 IDFY NUMERALS	2.494	1.671	1.348	3.272	1.916	1.988
M123 TOTL-SWPSI SC	0.553	0.808	0.731	0.926	0.740	0.880
RSQ	0.527	0.328	0.340	0.422	0.394	0.483
R	0.726	0.573	0.583	0.650	0.627	0.695
F	33.035	13.679	16.303	12.410	71.617	102.943
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

TABLE A8.4
CORRELATIONS WITHIN CELLS
OF WISC SCALES AND KINDERGARTEN SCALES
LONGITUDINAL SAMPLE

MATRIX FOR CELL A1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
003 GEO SHAP:IDFY	1	1.00	0.17	0.07	0.10	0.07	0.14	0.07	0.01	0.10	0.40	0.15	0.07	0.13	-0.01	0.06	0.08
004 COUNT BUTTONS	2		1.00	0.45	0.58	0.59	0.53	0.42	0.52	0.25	0.44	0.54	0.39	0.31	0.30	0.35	0.45
005 WRITE NUMERALS	3			1.00	0.31	0.48	0.37	0.28	0.47	0.24	0.30	0.58	0.42	0.23	0.23	0.26	0.38
006 COUNT MEMS:PC	4				1.00	0.37	0.47	0.49	0.23	0.17	0.34	0.35	0.38	0.24	0.32	0.31	0.42
007 IDFY NUMERALS	5					1.00	0.41	0.46	0.33	0.19	0.34	0.50	0.33	0.35	0.27	0.28	0.42
010 VOCABULARY	6						1.00	0.34	0.41	0.17	0.53	0.36	0.44	0.37	0.23	0.31	0.45
012 EQIV SETS:DOTS	7							1.00	0.27	0.22	0.35	0.35	0.21	0.23	0.19	0.36	0.33
013 ORDINAL NUMBER	8								1.00	0.35	0.45	0.43	0.32	0.18	0.21	0.42	0.37
014 ORDRG:GEO SHAP	9									1.00	0.26	0.28	0.04	0.00	0.03	0.15	0.07
015 CLASSIFYING	10										1.00	0.48	0.27	0.22	0.15	0.30	0.31
016 ROTE COUNTING	11											1.00	0.41	0.27	0.23	0.35	0.42
M112 VOCB:WPSI SCA	12												1.00	0.43	0.48	0.53	0.81
M114 SIML:WPSI SCA	13													1.00	0.29	0.27	0.68
M117 P.CM:WPSI SCA	14														1.00	0.49	0.75
M120 BLKD:WPSI SCA	15															1.00	0.75
M123 TOTL:WPSI SCA	16																1.00

		17	18	19	20	21
003 GEO SHAP:IDFY	1	0.02	0.18	0.04	0.08	0.12
004 COUNT BUTTONS	2	0.27	0.18	0.15	0.28	0.32
005 WRITE NUMERALS	3	0.29	0.10	0.27	0.26	0.33
006 COUNT MEMS:PC	4	0.11	0.25	0.08	0.29	0.27
007 IDFY NUMERALS	5	0.23	0.26	0.11	0.33	0.35
010 VOCABULARY	6	0.31	0.35	0.08	0.23	0.37
012 EQIV SETS:DOTS	7	0.28	0.27	0.09	0.32	0.36
013 ORDINAL NUMBER	8	0.36	0.19	0.29	0.29	0.41
014 ORDRG:GEO SHAP	9	0.24	0.24	0.02	0.14	0.24
015 CLASSIFYING	10	0.34	0.44	0.12	0.27	0.44
016 ROTE COUNTING	11	0.34	0.24	0.18	0.29	0.39
M112 VOCB:WPSI SCA	12	0.53	0.25	0.19	0.28	0.46
M114 SIML:WPSI SCA	13	0.41	0.29	0.14	0.27	0.42
M117 P.CM:WPSI SCA	14	0.38	0.12	0.05	0.19	0.28
M120 BLKD:WPSI SCA	15	0.45	0.26	0.33	0.48	0.56
M123 TOTL:WPSI SCA	16	0.59	0.31	0.24	0.41	0.57
M305 VOCB:WISC SCA	17	1.00	0.44	0.26	0.30	0.75
M306 SIML:WISC SCA	18		1.00	0.11	0.27	0.70
M307 P.CM:WISC SCA	19			1.00	0.27	0.59
M308 BLKD:WISC SCA	20				1.00	0.66
M311 TOTL:WISC SCA	21					1.00

N = 56 FOR CELL A1

(CONTINUED)

TABLE A8.4
(SECOND PAGE)

MATRIX FOR CELL B1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	14	16
003 GEO SHAP:IDFY	1	1.00	0.27	0.08	0.26	0.22	0.34	0.29	0.06	0.11	0.38	-0.07	0.26	0.13	0.19	0.14	0.28
004 COUNT BUTTONS	2		1.00	0.33	0.68	0.54	0.45	0.36	0.26	0.22	0.32	0.38	0.11	0.04	0.34	0.28	0.30
005 WRITE NUMERALS	3			1.00	0.37	0.43	0.29	0.20	0.13	0.32	0.28	0.22	0.13	0.09	0.10	0.20	0.20
006 COUNT MEMS:PC	4				1.00	0.46	0.39	0.33	0.19	0.32	0.34	0.30	0.15	0.07	0.27	0.33	0.32
007 IDFY NUMERALS	5					1.00	0.37	0.31	0.26	0.32	0.24	0.37	0.13	0.13	0.23	0.29	0.31
010 VOCABULARY	6						1.00	0.33	0.34	0.42	0.32	0.27	0.25	0.23	0.25	0.33	0.42
012 EQIV SETS:DOTS	7							1.00	0.10	0.25	0.43	0.22	0.28	-0.08	0.44	0.30	0.37
013 ORDINAL NUMBER	8								1.00	0.35	0.31	0.43	-0.04	0.04	0.17	0.19	0.14
014 ORDRG:GEO SHAP	9									1.00	0.29	0.28	0.22	0.08	0.33	0.35	0.38
015 CLASSIFYING	10										1.00	0.17	0.42	0.21	0.19	0.25	0.42
016 ROTE COUNTING	11											1.00	-0.09	-0.08	0.37	0.15	0.14
M112 VOCB:WPSI SCA	12												1.00	0.37	0.27	0.26	0.76
M114 SIML:WPSI SCA	13													1.00	-0.13	0.09	0.52
M117 P.CM:WPSI SCA	14														1.00	0.36	0.59
M120 BLKD:WPSI SCA	15															1.00	0.67
M123 TOTL:WPSI SCA	16																1.00

		17	18	19	20	21
003 GEO SHAP:IDFY	1	0.24	0.26	0.06	0.02	0.20
004 COUNT BUTTONS	2	0.25	0.21	0.13	0.12	0.24
005 WRITE NUMERALS	3	0.10	0.11	0.09	0.25	0.19
006 COUNT MEMS:PC	4	0.08	0.12	0.13	0.16	0.17
007 IDFY NUMERALS	5	0.12	0.25	-0.03	0.33	0.24
010 VOCABULARY	6	0.44	0.39	0.15	0.16	0.39
012 EQIV SETS:DOTS	7	0.24	0.30	0.18	0.33	0.36
013 ORDINAL NUMBER	8	0.18	0.18	-0.05	0.01	0.12
014 ORDRG:GEO SHAP	9	0.27	0.23	0.09	0.36	0.33
015 CLASSIFYING	10	0.40	0.49	0.23	0.28	0.48
016 ROTE COUNTING	11	0.10	0.12	-0.03	0.05	0.09
M112 VOCB:WPSI SCA	12	0.36	0.30	0.24	0.35	0.42
M114 SIML:WPSI SCA	13	0.31	0.26	-0.11	0.14	0.21
M117 P.CM:WPSI SCA	14	0.18	0.07	0.31	0.25	0.27
M120 BLKD:WPSI SCA	15	0.35	0.30	0.45	0.56	0.56
M123 TOTL:WPSI SCA	16	0.47	0.37	0.36	0.51	0.58
M305 VOCB:WISC SCA	17	1.00	0.61	0.37	0.30	0.77
M306 SIML:WISC SCA	18		1.00	0.25	0.44	0.81
M307 P.CM:WISC SCA	19			1.00	0.34	0.64
M308 BLKD:WISC SCA	20				1.00	0.72
M311 TOTL:WISC SCA	21					1.00

N = 83 FOR CELL B1

(CONTINUED)

TABLE A8.4
(FOURTH PAGE)

MATRIX FOR CELL D1

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	14	16
003 GEO SHAP:IDFY	1	1.00	0.35	0.25	0.15	0.29	0.47	0.41	0.28	0.24	0.44	0.26	0.34	0.39	0.20	0.23	0.47
004 COUNT BUTTONS	2		1.00	0.35	0.44	0.74	0.55	0.51	0.52	0.23	0.40	0.44	0.13	0.22	0.39	0.22	0.39
005 WRITE NUMERALS	3			1.00	0.31	0.46	0.31	0.30	0.51	0.25	0.47	0.70	0.27	0.08	0.27	0.16	0.32
006 COUNT MEMS:PC	4				1.00	0.52	0.46	0.39	0.33	0.08	0.41	0.46	0.28	0.25	0.12	0.07	0.29
007 IDFY NUMERALS	5					1.00	0.49	0.46	0.54	0.28	0.54	0.53	0.16	0.13	0.30	0.24	0.33
010 VOCABULARY	6						1.00	0.30	0.44	0.00	0.36	0.37	0.47	0.27	0.22	0.11	0.44
012 EQIV SETS:DOTS	7							1.00	0.42	0.31	0.34	0.22	0.09	-0.03	0.43	0.37	0.34
013 ORDINAL NUMBER	8								1.00	0.26	0.48	0.63	0.17	0.27	0.39	0.25	0.44
014 ORDRG:GEO SHAP	9									1.00	0.23	0.18	0.02	0.10	0.33	0.41	0.34
015 CLASSIFYING	10										1.00	0.55	0.38	0.19	0.36	0.15	0.44
016 ROTE COUNTING	11											1.00	0.18	0.20	0.21	0.05	0.26
M112 VOCB:WPSI SCA	12												1.00	0.28	0.02	0.15	0.58
M114 SIML:WPSI SCA	13													1.00	0.22	0.05	0.64
M117 P.CM:WPSI SCA	14														1.00	0.37	0.66
M120 BLKD:WPSI SCA	15															1.00	0.60
M123 TOTL:WPSI SCA	16																1.00

		17	18	19	20	21
003 GEO SHAP:IDFY	1	0.44	0.38	0.16	0.26	0.46
004 COUNT BUTTONS	2	0.26	0.46	0.10	0.25	0.39
005 WRITE NUMERALS	3	0.26	0.27	0.17	0.43	0.40
006 COUNT MEMS:PC	4	0.25	0.43	0.14	0.22	0.38
007 IDFY NUMERALS	5	0.32	0.52	0.05	0.27	0.43
010 VOCABULARY	6	0.46	0.49	0.13	0.34	0.52
012 EQIV SETS:DOTS	7	-0.05	0.25	0.13	0.37	0.23
013 ORDINAL NUMBER	8	0.30	0.52	0.17	0.40	0.50
014 ORDRG:GEO SHAP	9	0.13	-0.05	0.28	0.32	0.23
015 CLASSIFYING	10	0.25	0.48	0.02	0.20	0.35
016 ROTE COUNTING	11	0.27	0.49	-0.03	0.27	0.37
M112 VOCB:WPSI SCA	12	0.42	0.43	0.15	0.19	0.45
M114 SIML:WPSI SCA	13	0.46	0.38	0.27	0.36	0.54
M117 P.CM:WPSI SCA	14	0.18	0.33	0.15	0.37	0.36
M120 BLKD:WPSI SCA	15	0.03	0.14	0.24	0.34	0.25
M123 TOTL:WPSI SCA	16	0.45	0.52	0.32	0.51	0.65
M305 VOCB:WISC SCA	17	1.00	0.51	0.33	0.28	0.81
M306 SIML:WISC SCA	18		1.00	0.19	0.20	0.70
M307 P.CM:WISC SCA	19			1.00	0.33	0.63
M308 BLKD:WISC SCA	20				1.00	0.62
M311 TOTL:WISC SCA	21					1.00

N = 54 FOR CELL D1

Table A8.5
Regression Weights by Cell
for WISC Scales
Using Kindergarten Scales as Covariates
Longitudinal Sample

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DEPENDENT VARIABLE -- M305 WISC VOCABULARY SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C03 GEO SHAP:IDFY	-0.016	0.101	0.130	0.281	0.099	0.117
C13 ORDINAL NUMBE	0.127	0.116	0.115	0.106	0.128	0.186
M112 VOCB:WPSI SCA	0.126	0.038	0.260	0.256	0.181	0.238
M123 TOTL-SWPSI SC	0.283	0.363	0.178	0.156	0.247	0.300

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C03 GEO SHAP:IDFY	-0.041	0.259	0.336	0.725	0.254	0.303
C13 ORDINAL NUMBE	0.247	0.226	0.224	0.207	0.249	0.361
M112 VOCB:WPSI SCA	0.151	0.045	0.312	0.308	0.217	0.287
M123 TOTL-SWPSI SC	0.126	0.162	0.079	0.070	0.110	0.133
RSQ	0.383	0.247	0.251	0.313	0.276	0.401
R	0.619	0.497	0.501	0.560	0.525	0.633
F	14.271	6.654	7.862	5.931	31.771	55.868
P	0.000	0.000	0.000	0.001	0.000	0.000

****

DEPENDENT VARIABLE -- M306 WISC SIMILARITIES SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C10 VOCABULARY	0.094	0.277	0.078	0.245	0.143	0.159
C15 CLASSIFYING	0.306	0.415	0.172	0.220	0.271	0.283
M123 TOTL-SWPSI SC	0.116	0.150	0.367	0.291	0.228	0.279

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C10 VOCABULARY	0.098	0.287	0.081	0.254	0.148	0.165
C15 CLASSIFYING	0.486	0.659	0.273	0.349	0.430	0.449
M123 TOTL-SWPSI SC	0.049	0.064	0.156	0.124	0.097	0.118
RSQ	0.234	0.324	0.209	0.404	0.253	0.323
R	0.483	0.569	0.458	0.636	0.503	0.569
F	9.557	13.259	8.475	11.985	38.224	53.812
P	0.000	0.000	0.000	0.000	0.000	0.000

(continued)

Table A8.5
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DEPENDENT VARIABLE -- M307 WISC PICTURE COMPLETION SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C15 CLASSIFYING	C.011	0.118	0.222	-0.140	0.098	0.116
M120 BLKD:WPSI SCA	C.318	0.420	0.112	0.035	0.228	0.232
M124 TOTL-SWPSI SC	-C.021	0.027	0.218	0.385	0.113	0.156

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
015 CLASSIFYING	0.015	0.157	0.236	-0.187	0.131	0.155
M120 BLKD:WPSI SCA	0.326	0.430	0.114	0.036	0.234	0.238
M124 TOTL-SWPSI SC	-C.008	0.010	C.078	0.137	0.040	0.056
RSQ	C.119	0.216	0.142	0.126	0.125	0.169
R	C.346	0.464	0.377	0.355	0.354	0.411
F	4.250	7.600	5.317	2.550	16.134	22.921
P	0.007	0.000	0.002	0.065	0.000	0.000

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DEPENDENT VARIABLE -- M308 WISC BLOCK DESIGN SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C05 WRITE NUMERAL	0.110	C.C94	0.151	C.3C1	0.142	0.137
C12 EQIV SETS:DOT	0.C99	0.140	0.105	0.189	0.126	0.167
M112 VOCB:WPSI SCA	-C.CC5	0.158	0.085	C.054	0.082	0.141
M120 BLKD:WPSI SCA	0.316	0.493	0.493	C.206	0.392	0.409

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C05 WRITE NUMERAL	0.163	0.140	0.224	0.447	C.211	0.204
C12 EQIV SETS:DOT	C.134	0.189	0.143	0.256	0.171	0.227
M112 VOCB:WPSI SCA	-0.005	0.210	0.089	C.057	0.087	0.149
M120 BLKD:WPSI SCA	C.355	0.554	0.554	0.232	0.440	0.460
RSQ	0.269	0.391	0.371	0.295	0.318	0.390
R	C.518	0.625	0.609	0.544	0.564	0.625
F	8.537	13.166	14.004	5.452	39.211	53.883
P	0.000	0.000	0.000	0.001	0.000	0.000

(continued)

Table A8.5
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DEPENDENT VARIABLE -- M311 WISC TOTAL SCALED SCORE

STANDARDIZED REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
013 ORDINAL NUMBE	0.116	-0.043	0.081	0.192	0.072	0.120
015 CLASSIFYING	0.176	0.313	0.220	-0.019	0.209	0.222
M123 TOTL-SWPSI SC	0.308	0.510	0.479	0.540	0.435	0.522

RAW SCORE REGRESSION WEIGHTS

VARIABLE	A1	B1	C1	D1	POOLED	TOTAL
C13 ORDINAL NUMBE	0.614	-0.229	0.429	1.015	0.380	0.630
C15 CLASSIFYING	0.796	1.413	0.994	-0.088	0.942	1.002
M123 TOTL-SWPSI SC	0.371	0.616	0.578	0.651	0.525	0.630
RSQ	0.418	0.417	0.400	0.477	0.397	0.493
R	0.646	0.646	0.633	0.691	0.630	0.702
F	22.468	19.790	21.341	16.115	74.129	109.556
P	0.000	0.000	0.000	0.000	0.000	0.000

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